

SEQUENCE LISTING

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Geoff Hazlewood, David Lam

<120> PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND METHODS FOR MAKING AND
USING THEM

<130> 09010-094001

<140>

<150> 2003-04-21

<160> 106

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 849

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 1

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gaggataagc	ataatgaggg	gattaactct	catttggtgga	ttgtaaatcg	tgcaattgac	180
atcatgtctc	gtaatacaac	gattgtgaat	ccgaatgaaa	ctgcattatt	aaatgagtgg	240
cgtgctgatt	tagaaaaagg	tatttattct	gctgattacg	agaatcctta	ttatgataat	300
agtacatatg	cttctcactt	ttatgatccg	gatactggaa	caacatatat	tccttttgcg	360
aaacatgcaa	aagaaacagg	cgcaaaatat	tttaaccttg	ctggtcaagc	ataccaaaat	420
caagatatgc	agcaagcatt	cttctactta	ggattatcgc	ttcattattt	aggagatgtg	480
aatcagccaa	tgcattgcagc	aaacttttacg	aatcctttctt	atccaatggg	tttccattct	540
aaatacgaaa	atthttgttg	tacaataaaa	aataactata	ttgtttcaga	tagcaatgga	600
tattggaatt	ggaaaggagc	aaaccagaaa	gattggattg	aaggagcagc	ggtagcagct	660
aaacaagatt	atcctggcgt	tgtgaacgat	acgacaaaag	attggtttgt	aaaagcagcc	720
gtatctcaag	aatatgcaga	taaatggcgt	gcggaagtaa	caccggtgac	aggaaagcgt	780
ttaatggaag	cgcagcgcgt	tacagctggt	tatattcatt	tgtggtttga	tacgtatgta	840
aatcgctaa						849

<210> 2

<211> 282

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(24)

<400> 2

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Met Lys Lys Lys Val Leu Ala Leu Ala Ala Met Val Ala Leu Ala Ala
1      5      10      15
Pro Val Gln Ser Val Val Phe Ala Gln Thr Asn Asn Ser Glu Ser Pro
20      25      30
Ala Pro Ile Leu-Arg Trp Ser Ala Glu Asp Lys His Asn Glu Gly Ile
35      40      45
Asn Ser His Leu Trp Ile Val Asn Arg Ala Ile Asp Ile Met Ser Arg
50      55      60
Asn Thr Thr Ile Val Asn Pro Asn Glu Thr Ala Leu Leu Asn Glu Trp
65      70      75      80
Arg Ala Asp Leu Glu Asn Gly Ile Tyr Ser Ala Asp Tyr Glu Asn Pro
85      90      95
Tyr Tyr Asp Asn Ser Thr Tyr Ala Ser His Phe Tyr Asp Pro Asp Thr
100      105      110
Gly Thr Thr Tyr Ile Pro Phe Ala Lys His Ala Lys Glu Thr Gly Ala
115      120      125
Lys Tyr Phe Asn Leu Ala Gly Gln Ala Tyr Gln Asn Gln Asp Met Gln
130      135      140
Gln Ala Phe Phe Tyr Leu Gly Leu Ser Leu His Tyr Leu Gly Asp Val
145      150      155      160
Asn Gln Pro Met His Ala Ala Asn Phe Thr Asn Leu Ser Tyr Pro Met
165      170      175
Gly Phe His Ser Lys Tyr Glu Asn Phe Val Asp Thr Ile Lys Asn Asn
180      185      190
Tyr Ile Val Ser Asp Ser Asn Gly Tyr Trp Asn Trp Lys Gly Ala Asn
195      200      205
Pro Glu Asp Trp Ile Glu Gly Ala Ala Val Ala Ala Lys Gln Asp Tyr
210      215      220
Pro Gly Val Val Asn Asp Thr Thr Lys Asp Trp Phe Val Lys Ala Ala
225      230      235      240
Val Ser Gln Glu Tyr Ala Asp Lys Trp Arg Ala Glu Val Thr Pro Val
245      250      255
Thr Gly Lys Arg Leu Met Glu Ala Gln Arg Val Thr Ala Gly Tyr Ile
260      265      270
His Leu Trp Phe Asp Thr Tyr Val Asn Arg
275      280

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<210> 3

<211> 852

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 3

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gaatctatac ataatagaagg agtaagttct catTTtatgga ttgtaaacag agccattgat 180
attatgtccc aaaatacgac tgttgtgaag caaaatgaga cagctctatt aaatgaatgg 240
cgtacggatc tagagaaaagg catttactct gcggattatg aaaacccata ctatgataat 300
tccacattcg cttcacactt ctatgatcct gattcaggaa aaacgtatat tccatttgct 360
aaacaagcaa agcaaacagg agcgaaatat tttaaattag ctggtgaagc ttatcaaaat 420
aaagatctga aaaaacgcatt cttttattta ggattatcac ttactattt aggggatgtc 480
aaccaaccaa tgcatgcagc aaactttact aatatttcgc atccatttgg cttccactca 540
aaatatgaaa atttcgttga tacagtgaaa gacaattata gagtaacgga tggaaatggc 600

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tattggaatt	ggcaaagtgc	aaatccagaa	gagtgggttc	atgcatcagc	atcagcagca	660
aaagctgatt	ttccatcaat	tggttaatgat	aagacgaaaa	attgggttcct	aaaagcagct	720
gtatcacaag	actctgctga	taaatggcgt	gcagaagtaa	caccgataac	aggaaaacgt	780
ttaatggaag	cgcagcgtgt	tacagctgga	tatatccatt	tatgggtttga	tacgtacgtg	840
aataacaaat	aa					852

<210> 4

<211> 283

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(24)

<400> 4

Met	Lys	Arg	Lys	Ile	Leu	Ala	Ile	Ala	Ser	Val	Ile	Ala	Leu	Thr	Ala
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Pro	Ile	Gln	Ser	Val	Ala	Phe	Ala	His	Glu	Asn	Gly	His	Gln	Asp	Pro
			20					25					30		
Pro	Ile	Ala	Leu	Lys	Trp	Ser	Ala	Glu	Ser	Ile	His	Asn	Glu	Gly	Val
		35					40					45			
Ser	Ser	His	Leu	Trp	Ile	Val	Asn	Arg	Ala	Ile	Asp	Ile	Met	Ser	Gln
	50					55					60				
Asn	Thr	Thr	Val	Val	Lys	Gln	Asn	Glu	Thr	Ala	Leu	Leu	Asn	Glu	Trp
65					70					75				80	
Arg	Thr	Asp	Leu	Glu	Lys	Gly	Ile	Tyr	Ser	Ala	Asp	Tyr	Glu	Asn	Pro
			85						90					95	
Tyr	Tyr	Asp	Asn	Ser	Thr	Phe	Ala	Ser	His	Phe	Tyr	Asp	Pro	Asp	Ser
			100					105					110		
Gly	Lys	Thr	Tyr	Ile	Pro	Phe	Ala	Lys	Gln	Ala	Lys	Gln	Thr	Gly	Ala
		115					120					125			
Lys	Tyr	Phe	Lys	Leu	Ala	Gly	Glu	Ala	Tyr	Gln	Asn	Lys	Asp	Leu	Lys
		130				135					140				
Asn	Ala	Phe	Phe	Tyr	Leu	Gly	Leu	Ser	Leu	His	Tyr	Leu	Gly	Asp	Val
145					150					155				160	
Asn	Gln	Pro	Met	His	Ala	Ala	Asn	Phe	Thr	Asn	Ile	Ser	His	Pro	Phe
				165					170					175	
Gly	Phe	His	Ser	Lys	Tyr	Glu	Asn	Phe	Val	Asp	Thr	Val	Lys	Asp	Asn
			180					185					190		
Tyr	Arg	Val	Thr	Asp	Gly	Asn	Gly	Tyr	Trp	Asn	Trp	Gln	Ser	Ala	Asn
		195					200					205			
Pro	Glu	Glu	Trp	Val	His	Ala	Ser	Ala	Ser	Ala	Ala	Lys	Ala	Asp	Phe
		210				215					220				
Pro	Ser	Ile	Val	Asn	Asp	Lys	Thr	Lys	Asn	Trp	Phe	Leu	Lys	Ala	Ala
225					230					235				240	
Val	Ser	Gln	Asp	Ser	Ala	Asp	Lys	Trp	Arg	Ala	Glu	Val	Thr	Pro	Ile
				245					250					255	
Thr	Gly	Lys	Arg	Leu	Met	Glu	Ala	Gln	Arg	Val	Thr	Ala	Gly	Tyr	Ile
			260					265					270		
His	Leu	Trp	Phe	Asp	Thr	Tyr	Val	Asn	Asn	Lys					
		275					280								

<210> 5

<211> 843

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 5

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cataatgaag	gagtaagttc	tcattttatgg	attgtaaaca	gagcaattga	tattatgtcc	180
caaaatacga	ctgtggtgaa	gcaaaatgag	acagctctat	taaatgaatg	gcgtacgaat	240
ttggaggaag	gtattttattc	tgcagattat	aaaaacccat	actatgataa	ttccacattc	300
gcttcacact	tctatgatcc	tgattcagaa	aaaacgtata	ttccatttgc	taaacaagca	360
aagcaaacgg	gagcaaagta	ttttaaatta	gctgggtgaag	cttatcaaaa	taaagatctg	420
aaaaatgcat	tcttttattt	aggattatca	cttcattatt	taggggatgt	caatcaacca	480
atgcatgcag	caaacctttac	taacatttcg	catccatttg	gcttccactc	aaaatatgaa	540
aacttcggtg	atacagtga	agacaattat	agagtaacag	atggagatgg	ctattggaat	600
tggaaaagtg	caaatccaga	agagtgggtt	catgcatcag	catcagcagc	aaaagctgat	660
ttcccatcaa	ttgttaatga	taatacgaaa	agttgggtcc	taaaagcagc	ggtatcacia	720
gactctgctg	acaaatggcg	tgctgaagta	acaccggtaa	caggaaaacg	tttaatggaa	780
gcacagcgta	ttacagctgg	atatattcat	ttatgggttg	atacgtacgt	gaataacaaa	840
taa						843

<210> 6

<211> 280

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(24)

<400> 6

Met	Lys	Arg	Lys	Ile	Leu	Ala	Ile	Ala	Ser	Val	Ile	Ala	Leu	Thr	Ala
1				5					10					15	
Pro	Ile	Gln	Ser	Val	Ala	Phe	Ala	His	Glu	Ser	Asp	Gly	Pro	Ile	Ala
			20					25					30		
Leu	Arg	Trp	Ser	Ala	Glu	Ser	Val	His	Asn	Glu	Gly	Val	Ser	Ser	His
		35					40					45			
Leu	Trp	Ile	Val	Asn	Arg	Ala	Ile	Asp	Ile	Met	Ser	Gln	Asn	Thr	Thr
	50					55					60				
Val	Val	Lys	Gln	Asn	Glu	Thr	Ala	Leu	Leu	Asn	Glu	Trp	Arg	Thr	Asn
	65				70				75					80	
Leu	Glu	Glu	Gly	Ile	Tyr	Ser	Ala	Asp	Tyr	Lys	Asn	Pro	Tyr	Tyr	Asp
			85					90					95		
Asn	Ser	Thr	Phe	Ala	Ser	His	Phe	Tyr	Asp	Pro	Asp	Ser	Glu	Lys	Thr
		100						105					110		
Tyr	Ile	Pro	Phe	Ala	Lys	Gln	Ala	Lys	Gln	Thr	Gly	Ala	Lys	Tyr	Phe
		115				120					125				
Lys	Leu	Ala	Gly	Glu	Ala	Tyr	Gln	Asn	Lys	Asp	Leu	Lys	Asn	Ala	Phe
	130					135					140				
Phe	Tyr	Leu	Gly	Leu	Ser	Leu	His	Tyr	Leu	Gly	Asp	Val	Asn	Gln	Pro
	145				150				155					160	
Met	His	Ala	Ala	Asn	Phe	Thr	Asn	Ile	Ser	His	Pro	Phe	Gly	Phe	His
				165					170					175	


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Ser Lys Tyr Glu Asn Phe Val Asp Thr Val Lys Asp Asn Tyr Arg Val
      180      185      190
Thr Asp Gly Asp Gly Tyr Trp Asn Trp Lys Ser Ala Asn Pro Glu Glu
      195      200      205
Trp Val His Ala Ser Ala Ser Ala Ala Lys Ala Asp Phe Pro Ser Ile
      210      215      220
Val Asn Asp Asn Thr Lys Ser Trp Phe Leu Lys Ala Ala Val Ser Gln
      225      230      235      240
Asp Ser Ala Asp Lys Trp Arg Ala Glu Val Thr Pro Val Thr Gly Lys
      245      250      255
Arg Leu Met Glu Ala Gln Arg Ile Thr Ala Gly Tyr Ile His Leu Trp
      260      265      270
Phe Asp Thr Tyr Val Asn Asn Lys
      275      280

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<210> 7

<211> 963

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 7

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caacataatg tatttttatt gcctgaatca gtttcttatt ggggtcagga cgaacgtgca      180
gattatatga gtaatgcaga ttacttcaag ggacatgatg ctctgctctt aaatgagctt      240
tttgacaatg gaaattcgaa catgctgcta atgaacttat ccacggaata tccatatcaa      300
acgccagtgc ttggccgttc gatgagtggg tgggatgaaa ctagaggaag ctatttcta      360
tttgtacccg aagatggcgg tgtagcaatt atcagtaaat ggccaatcgt ggagaaaata      420
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat      480
gcaaaagtac aaaaagggga taaattctat catcttatca gcactcatgc tcaagccgaa      540
gatactgggt gtgatcaggg tgaaggagca gaaattcgtc attcacagtt tcaagaaatc      600
aacgacttta ttaaaaataa aaacattccg aaagatgaag tgggtatttat tgggtggtgac      660
tttaatgtga tgaagagtga cacaacagag tacaatagca tgttatcaac attaaatgac      720
aatgcgctta ccgaatattt agggcatagc tctacttggg acccagaaac gaacagcatt      780
acagggttaca attaccctga ttatgcgcca cagcatttag attatatatt tgtggaaaaa      840
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg      900
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa      960
taa

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<210> 8

<211> 320

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(29)

<400> 8

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Met Ile Thr Leu Ile Lys Lys Cys Leu Leu Val Leu Thr Met Thr Leu
  1           5           10           15
Leu Leu Gly Val Phe Val Pro Leu Gln Pro Ser His Ala Thr Glu Asn

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<210>	9
<211>	999
<212>	DNA
<213>	Unknown

<220>
<223> Obtained from an environmental sample.

<400> 9						
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gatacactta	aagtaatggc	ttataatatt	atgcaactaa	acgtacaaga	ttgggatcaa	120
gcaaatcgtg	cacagcgcgt	gccaaacgtc	atatctcaat	taagtgaacg	tcctgatgtc	180
attcttatca	gcgaagcgtt	tagcagccaa	tcagaatctg	cgttagcgca	acttgctcaa	240
ctttaccctt	atcaaaactcc	caatgttgcc	gaagactgta	gtggcgctgg	ctggcaaagc	300
ttaacgggta	actgctcgaa	tagccctttt	gtgatccgcg	gtggagtggt	gattttatct	360
aagtacccca	tcattacgca	aaaagcccat	gtgtttaata	acagcctgac	tgatagttgg	420
gattattttag	caaacaaagg	tttcgcttat	gttgaaatag	aaaaacatgg	caaacgttac	480
caccttattg	gcacgcattt	acaagcaacg	catgatggcg	acacagaagc	tgagcatatt	540
gtgagaatgg	gtcaattaca	agagatacaa	gatttcattc	aaagcgagca	aattcacact	600

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tctgagccgg tcattatcgg cgggtgatatg aacgtagagt ggagcaagca atctgaaatt 660
acagatatgc tcgaagtggg tcgcagccgt ctaattttca acacacctga agttggctct 720
ttctctgcaa aacacaactg gtttaccaaa gctaacgcct actatttcga ctacagctta 780
gagtataacg acacgctcga ttatgtactt tggcatgcag accataagca accaccaat 840
accccagaaa tgttagtacg ttacccaaaa gcagagcgtg acttttactg gcgttactta 900
cgcggaattt ggaacttacc ttctggccgt tattatcatg atggatacta taacgaactg 960
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<210> 10

<211> 332

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(20)

<400> 10

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Met Lys Leu Leu Arg Val Phe Val Cys Val Phe Ala Leu Leu Ser Ala
 1          5          10          15
His Ser Lys Ala Asp Thr Leu Lys Val Met Ala Tyr Asn Ile Met Gln
          20          25          30
Leu Asn Val Gln Asp Trp Asp Gln Ala Asn Arg Ala Gln Arg Leu Pro
          35          40          45
Asn Val Ile Ser Gln Leu Ser Asp Ser Pro Asp Val Ile Leu Ile Ser
          50          55          60
Glu Ala Phe Ser Ser Gln Ser Glu Ser Ala Leu Ala Gln Leu Ala Gln
65          70          75          80
Leu Tyr Pro Tyr Gln Thr Pro Asn Val Gly Glu Asp Cys Ser Gly Ala
          85          90          95
Gly Trp Gln Ser Leu Thr Gly Asn Cys Ser Asn Ser Pro Phe Val Ile
          100          105          110
Arg Gly Gly Val Val Ile Leu Ser Lys Tyr Pro Ile Ile Thr Gln Lys
          115          120          125
Ala His Val Phe Asn Asn Ser Leu Thr Asp Ser Trp Asp Tyr Leu Ala
          130          135          140
Asn Lys Gly Phe Ala Tyr Val Glu Ile Glu Lys His Gly Lys Arg Tyr
145          150          155          160
His Leu Ile Gly Thr His Leu Gln Ala Thr His Asp Gly Asp Thr Glu
          165          170          175
Ala Glu His Ile Val Arg Met Gly Gln Leu Gln Glu Ile Gln Asp Phe
          180          185          190
Ile Gln Ser Glu Gln Ile His Thr Ser Glu Pro Val Ile Ile Gly Gly
          195          200          205
Asp Met Asn Val Glu Trp Ser Lys Gln Ser Glu Ile Thr Asp Met Leu
210          215          220
Glu Val Val Arg Ser Arg Leu Ile Phe Asn Thr Pro Glu Val Gly Ser
225          230          235          240
Phe Ser Ala Lys His Asn Trp Phe Thr Lys Ala Asn Ala Tyr Tyr Phe
          245          250          255
Asp Tyr Ser Leu Glu Tyr Asn Asp Thr Leu Asp Tyr Val Leu Trp His
          260          265          270
Ala Asp His Lys Gln Pro Thr Asn Thr Pro Glu Met Leu Val Arg Tyr
275          280          285
Pro Lys Ala Glu Arg Asp Phe Tyr Trp Arg Tyr Leu Arg Gly Asn Trp

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290 295 300
 Asn Leu Pro Ser Gly Arg Tyr Tyr His Asp Gly Tyr Tyr Asn Glu Leu
 305 310 315 320
 Ser Asp His Tyr Pro Val Gln Val Asn Phe Glu Phe
 325 330

<210> 11
 <211> 1041
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

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 ggaacaagtg caggggctat taacgctctc attttttcgc tgggctttac cattaagag 180
 cagcaggata ttctcaattc caccaacttc agggagttaa tggacagctc ttccggattt 240
 gtgcgaaact tcagaaggct ctggagttaa ttccgggtgga accgcggtga tgtgttttcg 300
 gagtgggcag gagagctggt gaaagagaaa ctccggcaaga agaaccgccac cttcggcgat 360
 ctgaaaaaag cgaagcgccc cgatctctac gttatcggaa ccaacctctc caccgggttt 420
 tccgagactt ttccgcatga acgccacgcc aacatgccgc tgggtggatgc ggtgcggatc 480
 agcatgtcga tcccgctctt ttttgcggca cgcagacttg gcaaacgaag cgatgtgtat 540
 gtggatggag gtgttatgct caactacccg gtaaagctgt tcgacaggga gaaatacatc 600
 gatttgagga aggagaaaga ggcagccgcg tacgtggagt actacaatca agagaatgcc 660
 cggtttctgc ttgagcggcc cggccgaagc ccgtacgttt acaaccggca gaccctaggc 720
 ctgcggctcg actcgcagga agagatcggc ctggttccgtt acgatgagcc gctgaagggc 780
 aaacagatca accgcttccc cgaatatgcc aaagccctga tcggtgcact gatgcagggtg 840
 caggagaaca tccacctgaa aagcgacgac tggcagcgaa cgctctacat caacacgctg 900
 gatgtgggta ccacagattt cgacattaat gacgagaaga aaaaagtgtt ggtgaatgag 960
 ggaatcaagg gagcggaac ctacttccgc tggtttgagg atcccgaagc taaaccgggtg 1020
 aacaagggtg atttggctctg a 1041

<210> 12
 <211> 346
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 12
 Met Ala Ser Gln Phe Arg Asn Leu Val Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Ile Ala Tyr Ile Gly Ala Met Gln Val Leu Glu Gln Arg Gly His
 20 25 30
 Leu Glu His Val Val Arg Val Gly Gly Thr Ser Ala Gly Ala Ile Asn
 35 40 45
 Ala Leu Ile Phe Ser Leu Gly Phe Thr Ile Lys Glu Gln Gln Asp Ile
 50 55 60
 Leu Asn Ser Thr Asn Phe Arg Glu Phe Met Asp Ser Ser Phe Gly Phe
 65 70 75 80
 Val Arg Asn Phe Arg Arg Leu Trp Ser Glu Phe Gly Trp Asn Arg Gly
 85 90 95
 Asp Val Phe Ser Glu Trp Ala Gly Glu Leu Val Lys Glu Lys Leu Gly
 100 105 110

Lys Lys Asn Ala Thr Phe Gly Asp Leu Lys Lys Ala Lys Arg Pro Asp
 115 120 125
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ser Glu Thr Phe
 130 135 140
 Ser His Glu Arg His Ala Asn Met Pro Leu Val Asp Ala Val Arg Ile
 145 150 155 160
 Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Arg Arg Leu Gly Lys Arg
 165 170 175
 Ser Asp Val Tyr Val Asp Gly Gly Val Met Leu Asn Tyr Pro Val Lys
 180 185 190
 Leu Phe Asp Arg Glu Lys Tyr Ile Asp Leu Glu Lys Glu Lys Glu Ala
 195 200 205
 Ala Arg Tyr Val Glu Tyr Tyr Asn Gln Glu Asn Ala Arg Phe Leu Leu
 210 215 220
 Glu Arg Pro Gly Arg Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
 225 230 235 240
 Leu Arg Leu Asp Ser Gln Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
 245 250 255
 Pro Leu Lys Gly Lys Gln Ile Asn Arg Phe Pro Glu Tyr Ala Lys Ala
 260 265 270
 Leu Ile Gly Ala Leu Met Gln Val Gln Glu Asn Ile His Leu Lys Ser
 275 280 285
 Asp Asp Trp Gln Arg Thr Leu Tyr Ile Asn Thr Leu Asp Val Gly Thr
 290 295 300
 Thr Asp Phe Asp Ile Asn Asp Glu Lys Lys Lys Val Leu Val Asn Glu
 305 310 315 320
 Gly Ile Lys Gly Ala Glu Thr Tyr Phe Arg Trp Phe Glu Asp Pro Glu
 325 330 335
 Ala Lys Pro Val Asn Lys Val Asp Leu Val
 340 345

<210> 13

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 13

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gggtgcagtg	cgggtgcgat	caacgcgctg	atttttgcgc	tgggttacac	ggtccgtgag	180
caaaaagaga	tcttacaagc	cacggatttt	aaccagttta	tggataactc	ttgggggtgtt	240
attcgtgata	ttcgcaggct	tgctcgagac	tttggctggc	acaaggggtga	cttctttaat	300
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ctgcaaaagg	ccaagcttcc	tgatctttat	gtcatcggta	ctaactctgtc	tacagggtat	420
gcagaggttt	tttcagccga	aagacacccc	gatatggagc	tagcgacagc	ggtgcgtatc	480
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gatctggtca	aagatcccgg	tgccgttcgg	cgaacggggt	attacaacaa	agaaaacgct	660
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gatgtgggta	cgacggattt	caatctttct	gatgcaacca	agcaagcact	gattgagcaa	960
ggaattaacg	gcaccgaaaa	ttatttcgac	tggtttgata	atccgttaga	gaagcctgtg	1020

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<210> 14

<211> 345

<212> PRT

<213> Unknown -

<220>

<223> Obtained from an environmental sample.

<400> 14

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Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
          20          25          30
Leu Gln Asp Ile His Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
          35          40          45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
          50          55          60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
65          70          75          80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp His Lys Gly
          85          90          95
Asp Phe Phe Asn Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
          100          105          110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
          115          120          125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Tyr Ala Glu Val Phe
          130          135          140
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
145          150          155          160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Glu Arg
          165          170          175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
          180          185          190
Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Val Lys Asp Pro Gly Ala
          195          200          205
Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
          210          215          220
Glu Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
225          230          235          240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
          245          250          255
Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
          260          265          270
Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Asn Ile His Leu His Gly
          275          280          285
Asp Asp Trp Ala Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr
          290          295          300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
305          310          315          320
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Asp Trp Phe Asp Asn Pro Leu
          325          330          335
Glu Lys Pro Val Asn Arg Val Glu Ser
          340          345

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<210> 15

<211> 1344

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 15

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gattatgtgt ccctggatga ccaggtagcg ttcaatgatc tggtcgatgc catggccaga      180
gcctggagcg atcgtggtct gccacgggcc ccgcgcagcg tcgatgccgt cgtgcacagc      240
accggcggcc tggatgatccg cgactggctc acgcagctgt acacgccgga aacagccccc      300
attcgtcgcc tgctgatgct cgctccggcc aatttcggct cgccgctggc acacaccgga      360
cgcagcatga tcggccgggt caccaagggc tggaagggca cgcggctctt tgaaacgggc      420
aagcacattc tcaaagggct cgaactggcc agcccctacg cctgggcgct ggccgaacgc      480
gatctgttca gcgatcagaa ctattatggc gccgggcgca tcctgtgcac tgtcctggtg      540
ggcaacgccg gttatcgcgg catcagcgcc gtcgccaacc ggcccggcac ggacggcacc      600
gtgcgcgtca gcagcgccaa tctccaagcg gccaggatgc tgctcgattt cagcgccagt      660
ccacaggctg agccggaatt caccctgcac gacagcaccg cggaaattgc cttcggcatc      720
gccgacgagg aagaccacag caccatcgcc gccaaaggatc gcggcccgcg caaggcagtc      780
acctgggaac tgattctcaa agccctgcag atcgaggatg caagctttgc tcaatggtgc      840
cggcagatgc aggagcattc cgcgcccggt acggaacggc cggaaaagcg ccgcaatggt      900
cactacaaca gcttccagaa taccgtcggt cgcggtggtg acaaccacgg tgccgccgtg      960
caggattatc tcategagtt ttacatgaat gatgatcgca aactccgcga tcagcgccctc    1020
acccagcgcc tgcaggagca ggtgattacc aacgtgcacg gctacggtga cgacaagtcc    1080
tatcgcagca tgctgatcaa ctgcacggag ctctatgcgc tgatgtccag accgcaggat    1140
cgcctgaaca tcagcatcac cgcctatccg gatctctcca agggactggt ggggtatcgc    1200
acctacacgg acgaggatat cggttccctc tctctggatg cagcgcagat ccgaaagctc    1260
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<210> 16

<211> 447

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 16

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Met Leu Val Ile Ile His Gly Trp Ser Asp Glu Ala Gly Ser Phe Lys
1           5           10           15
Thr Leu Ala Arg Arg Leu Ala Lys Ala Pro Pro Glu Gly Leu Gly Thr
20           25           30
Gln Val Thr Glu Ile His Leu Gly Asp Tyr Val Ser Leu Asp Asp Gln
35           40           45
Val Thr Phe Asn Asp Leu Val Asp Ala Met Ala Arg Ala Trp Ser Asp
50           55           60
Arg Gly Leu Pro Thr Ala Pro Arg Ser Val Asp Ala Val Val His Ser
65           70           75           80
Thr Gly Gly Leu Val Ile Arg Asp Trp Leu Thr Gln Leu Tyr Thr Pro
85           90           95
Glu Thr Ala Pro Ile Arg Arg Leu Leu Met Leu Ala Pro Ala Asn Phe
100          105          110
Gly Ser Pro Leu Ala His Thr Gly Arg Ser Met Ile Gly Arg Val Thr
115          120          125

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Lys Gly Trp Lys Gly Thr Arg Leu Phe Glu Thr Gly Lys His Ile Leu
 130 135 140
 Lys Gly Leu Glu Leu Ala Ser Pro Tyr Ala Trp Ala Leu Ala Glu Arg
 145 150 155 160
 Asp Leu Phe Ser Asp Gln Asn Tyr Tyr Gly Ala Gly Arg Ile Leu Cys
 -165 170 175
 Thr Val Leu Val Gly Asn Ala Gly Tyr Arg Gly Ile Ser Ala Val Ala
 180 185 190
 Asn Arg Pro Gly Thr Asp Gly Thr Val Arg Val Ser Ser Ala Asn Leu
 195 200 205
 Gln Ala Ala Arg Met Leu Leu Asp Phe Ser Ala Ser Pro Gln Ala Glu
 210 215 220
 Pro Glu Phe Thr Leu His Asp Ser Thr Ala Glu Ile Ala Phe Gly Ile
 225 230 235 240
 Ala Asp Glu Glu Asp His Ser Thr Ile Ala Ala Lys Asp Arg Gly Pro
 245 250 255
 Arg Lys Ala Val Thr Trp Glu Leu Ile Leu Lys Ala Leu Gln Ile Glu
 260 265 270
 Asp Ala Ser Phe Ala Gln Trp Cys Arg Gln Met Gln Glu His Ser Ala
 275 280 285
 Ala Val Thr Glu Thr Ala Glu Lys Arg Arg Asn Val His Tyr Asn Ser
 290 295 300
 Phe Gln Asn Thr Val Val Arg Val Val Asp Asn His Gly Ala Ala Val
 305 310 315 320
 Gln Asp Tyr Leu Ile Glu Phe Tyr Met Asn Asp Asp Arg Lys Leu Arg
 325 330 335
 Asp Gln Arg Leu Thr Gln Arg Leu Gln Glu Gln Val Ile Thr Asn Val
 340 345 350
 His Gly Tyr Gly Asp Asp Lys Ser Tyr Arg Ser Met Leu Ile Asn Cys
 355 360 365
 Thr Glu Leu Tyr Ala Leu Met Ser Arg Pro Gln Asp Arg Leu Asn Ile
 370 375 380
 Ser Ile Thr Ala Tyr Pro Asp Leu Ser Lys Gly Leu Val Gly Tyr Arg
 385 390 395 400
 Thr Tyr Thr Asp Glu Asp Ile Gly Ser Leu Ser Leu Asp Ala Ala Gln
 405 410 415
 Ile Arg Lys Leu Phe Lys Pro His Arg Thr Leu Leu Met Thr Leu Cys
 420 425 430
 Leu Gln Arg Tyr Gln Lys Asp Asp Val Phe Arg Phe Arg Asp Val
 435 440 445

<210> 17

<211> 1137

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 17

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atcctgcagg	aaaaacatgg	gaaggactat	ctcctttgcg	atcactttga	tttgatcggt	180
ggaacttcca	caggctccat	cattgcagca	gcattggcta	taggcatgac	agtggaggaa	240
atcactaaaa	tgtatatgga	tctgggcgga	aaaattttcg	gcaagaaaag	gagtttctgg	300
agaccctggg	aaactgcgaa	atacttgaaa	gcaggatatg	accacaaagc	tcttgaaaag	360
agtctgaaag	atgctttcca	ggattttctt	ttaggaagtg	accaaattag	aacaggtctt	420

tgtatagtag	ccaaaagagc	agataccaat	agtatatggc	cattgattaa	ccaccccaaa	480
ggaaaattct	atgattcaga	acaaggcaaa	aacaaaaata	tccccttatg	gcaggcagta	540
agggcgagta	ccgctgctcc	aacctatttc	gctccacaat	taatagatgt	gggtgatggt	600
caaaaaggctg	cttttgtgga	cggaggggta	agcatggcca	ataaccccg	attaaccctg	660
ttaaaagtgg	ctacacttaa	aggttttcct	tttcattggc	caatgggaga	agacaaaactg	720
accatagttt	cagtaggcac	cggatatagt	gttttccaaa	gacaaaagg	tgaaatcacc	780
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tggcagaatc	agaccatact	tcagtggatt	tctaaatccc	ccactgcaca	ttccatagat	900
atggaaatgg	aagaccttag	agatgacttt	ctaggcgga	gaccactcat	caaatacctc	960
aggtacaact	tccccttgac	agtaaatgat	ctcaatggat	tgaagcttgg	gaaaagcttt	1020
acccaaaaag	aggtcgaaga	tttgggtgga	atgagcaatg	cacataaccg	agaggagtgtg	1080
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<210> 18

<211> 378

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 18

Met	Lys	Lys	Ser	Leu	Gln	Gln	His	Leu	Ala	Ala	Asp	Gly	Ser	Pro	Lys	
1				5					10					15		
Asn	Ile	Leu	Ser	Leu	Asp	Gly	Gly	Gly	Ile	Arg	Gly	Ala	Leu	Thr	Leu	
			20					25					30			
Gly	Phe	Leu	Lys	Lys	Ile	Glu	Ser	Ile	Leu	Gln	Glu	Lys	His	Gly	Lys	
		35					40					45				
Asp	Tyr	Leu	Leu	Cys	Asp	His	Phe	Asp	Leu	Ile	Gly	Gly	Thr	Ser	Thr	
	50					55					60					
Gly	Ser	Ile	Ile	Ala	Ala	Ala	Leu	Ala	Ile	Gly	Met	Thr	Val	Glu	Glu	
65					70				75					80		
Ile	Thr	Lys	Met	Tyr	Met	Asp	Leu	Gly	Gly	Lys	Ile	Phe	Gly	Lys	Lys	
			85					90					95			
Arg	Ser	Phe	Trp	Arg	Pro	Trp	Glu	Thr	Ala	Lys	Tyr	Leu	Lys	Ala	Gly	
			100					105					110			
Tyr	Asp	His	Lys	Ala	Leu	Glu	Lys	Ser	Leu	Lys	Asp	Ala	Phe	Gln	Asp	
		115					120					125				
Phe	Leu	Leu	Gly	Ser	Asp	Gln	Ile	Arg	Thr	Gly	Leu	Cys	Ile	Val	Ala	
	130					135					140					
Lys	Arg	Ala	Asp	Thr	Asn	Ser	Ile	Trp	Pro	Leu	Ile	Asn	His	Pro	Lys	
145					150				155					160		
Gly	Lys	Phe	Tyr	Asp	Ser	Glu	Gln	Gly	Lys	Asn	Lys	Asn	Ile	Pro	Leu	
			165					170					175			
Trp	Gln	Ala	Val	Arg	Ala	Ser	Thr	Ala	Ala	Pro	Thr	Tyr	Phe	Ala	Pro	
			180					185					190			
Gln	Leu	Ile	Asp	Val	Gly	Asp	Gly	Gln	Lys	Ala	Ala	Phe	Val	Asp	Gly	
	195						200					205				
Gly	Val	Ser	Met	Ala	Asn	Asn	Pro	Ala	Leu	Thr	Leu	Leu	Lys	Val	Ala	
	210					215					220					
Thr	Leu	Lys	Gly	Phe	Pro	Phe	His	Trp	Pro	Met	Gly	Glu	Asp	Lys	Leu	
225					230				235					240		
Thr	Ile	Val	Ser	Val	Gly	Thr	Gly	Tyr	Ser	Val	Phe	Gln	Arg	Gln	Lys	
			245					250					255			
Gly	Glu	Ile	Thr	Lys	Ala	Ser	Leu	Leu	Thr	Trp	Ala	Lys	Asn	Val	Pro	
			260					265				270				
Glu	Met	Leu	Met	Gln	Asp	Ala	Ser	Trp	Gln	Asn	Gln	Thr	Ile	Leu	Gln	

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Met Lys Lys Thr Thr Leu Val Leu Ala Leu Leu Met Pro Phe Gly Ala
 1      5      10      15
Ala Ser Ala Gln Asp Asn Ser Met Thr Pro Glu Ala Ile Thr Ser Ala
      20      25      30
Gln Val Ala Gln Thr Gln Ser Ala Ser Thr Tyr Thr Tyr Val Arg Cys
      35      40      45
Trp Tyr Arg Thr Asp Ala Ser His Asp Ser Pro Ala Thr Asp Trp Glu
      50      55      60
Trp Ala Arg Lys Glu Asn Gly Asp Tyr Tyr Thr Ile Asp Gly Tyr Trp
65      70      75      80
Trp Ser Ser Ile Ser Phe Lys Asn Met Phe Tyr Ser Glu Thr Pro Gln
      85      90      95
Gln Glu Ile Lys Gln Arg Cys Val Asp Thr Leu Asp Val Gln His Asp
      100      105      110
Lys Ala Asp Ile Thr Tyr Phe Ala Ala Asp Asn Arg Phe Ser Tyr Asn
      115      120      125
His Ser Ile Trp Thr Asn Asp His Gly Phe Gln Ala Asn Gln Ile Asn
      130      135      140
Arg Ile Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Phe
145      150      155      160
Asn Gly Ser Gln Trp Ile Phe Pro Asn Pro Asn Ser Trp Phe Leu Gly
      165      170      175
His Phe Ser Asn Gly Phe Val Trp Thr Glu Tyr Leu Ala Asn Ala Lys
      180      185      190
Gly Val Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn
      195      200      205
Gln Tyr Val Ala Leu Thr Gly Val Tyr Asp Gln Val Thr Ser Tyr Leu
      210      215      220
Thr Tyr Met Lys Met Ala Lys Asn Tyr Arg Pro Glu Asn Thr Leu Phe
225      230      235      240
Thr Leu Glu Phe Gly Leu Asn Asp Phe Met Asn Tyr Gly Arg Glu Val
      245      250      255
Ala Asp Val Lys Ala Asp Phe Ser Ser Ala Leu Ile Arg Leu Thr Asp
      260      265      270
Ala Gly Ala Lys Asn Ile Leu Leu Phe Thr Leu Pro Asp Ala Thr Lys
      275      280      285
Ala Pro Gln Phe Lys Tyr Ser Thr Ala Gln Glu Ile Glu Thr Val Arg
      290      295      300
Gly Lys Ile Leu Ala Phe Asn Gln Phe Ile Lys Glu Gln Ala Glu Tyr
305      310      315      320
Tyr Gln Ser Lys Gly Asp Asn Val Ile Leu Phe Asp Ala His Ala Leu
      325      330      335
Phe Ser Ser Ile Thr Ser Asp Pro Gln Lys His Gly Phe Arg Asn Ala
      340      345      350
Lys Asp Ala Cys Leu Asp Ile Asn Arg Ser Ala Ser Gln Asp Tyr Leu
      355      360      365
Tyr Ser His Ser Leu Thr Asn Asp Cys Ala Thr Tyr Gly Ser Asp Ser
      370      375      380
Tyr Val Phe Trp Gly Val Thr His Pro Thr Thr Ala Thr His Lys Tyr
385      390      395      400
Ile Ala Thr His Ile Leu Met Asn Ser Met Ser Thr Phe Asp Phe
      405      410      415

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<210> 21

<211> 1716

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 21

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tatgaaccac	gctatgatga	cgtgttttct	gcgattgtcg	gcgaacgctg	ggtggacacg	360
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cagcaagagg	cacaaacgct	ggtaaacaac	tggttgtcgt	tcgacgaaca	ggaaatgctg	1020
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gacgcaggca	agaaagtga	gatcaaaaac	gccatcaacg	gcaatccgct	ggtagcgccg	1380
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tatcgcgatg	aaccggcggg	cgtgctgtgg	acgatcgaga	acacctactg	gaatgatttc	1620
ctgtggttca	acagttcgaa	caaccgcac	tacgtaagcg	gcacggggcg	tgccaacaag	1680
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<210> 22

<211> 571

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(28)

<400> 22

Met	Gln	Gln	His	Lys	Leu	Arg	Asn	Phe	Asn	Lys	Gly	Leu	Thr	Gly	Val
1				5					10					15	
Val	Leu	Ser	Val	Leu	Thr	Ser	Thr	Ser	Ala	Met	Ala	Phe	Thr	Gln	Ile
			20					25					30		
Gly	Gly	Gly	Gly	Ala	Ile	Pro	Met	Gly	His	Glu	Trp	Leu	Thr	Arg	Arg
			35				40						45		
Ser	Ala	Leu	Glu	Leu	Leu	Asn	Ala	Asp	His	Ile	Val	Ser	Asn	Asp	Pro
			50				55				60				
Leu	Asp	Pro	Arg	Leu	Gly	Trp	Ser	Gln	Gly	Leu	Ala	Lys	Asn	Leu	Asp
65					70					75					80

Leu Ser Asn Ala Leu Asn Glu Val Gln Arg Ile Gln Ser Val Thr Lys
 85 90 95
 Thr Asn Ala Leu Tyr Glu Pro Arg Tyr Asp Asp Val Phe Ser Ala Ile
 100 105 110
 Val Gly Glu Arg Trp Val Asp Thr Ala Gly Phe Asn Val Ala Lys Ala
 115 120 125
 Thr Val Gly Lys Ile Asp Cys Phe Ser Ala Val Ala Gln Glu Pro Ala
 130 135 140
 Asp Val Gln Gln Asp His Phe Met Arg Arg Tyr Asp Asp Val Gly Gly
 145 150 155 160
 Gln Gly Gly Val Asn Ala Ala Arg Arg Gly Gln Gln Arg Phe Ile Thr
 165 170 175
 His Phe Ile Asn Ala Ala Met Ala Glu Glu Lys Ser Ile Lys Ala Trp
 180 185 190
 Asp Gly Gly Gly Tyr Ser Thr Leu Glu Lys Val Ser His Asn Tyr Phe
 195 200 205
 Leu Phe Gly Arg Ala Val His Leu Phe Gln Asp Ser Phe Ser Pro Glu
 210 215 220
 His Thr Val Arg Leu Pro Gln Asp Asn Tyr Glu Lys Val Arg Gln Val
 225 230 235 240
 Lys Ala Tyr Leu Cys Ser Glu Gly Ala Glu Gln His Thr His Asn Ala
 245 250 255
 Gln Asp Ala Ile Ser Phe Thr Ser Gly Asp Val Ile Trp Lys Lys Asn
 260 265 270
 Thr Arg Leu Asp Ala Gly Trp Ser Thr Tyr Lys Pro Ser Asn Met Lys
 275 280 285
 Pro Val Ala Leu Val Ala Met Glu Ala Ser Lys Asp Leu Trp Ala Ala
 290 295 300
 Phe Ile Arg Thr Met Ala Ala Pro Arg Ser Glu Arg Arg Ala Ile Ala
 305 310 315 320
 Gln Gln Glu Ala Gln Thr Leu Val Asn Asn Trp Leu Ser Phe Asp Glu
 325 330 335
 Gln Glu Met Leu Ser Trp Tyr Asp Glu Glu Thr His Arg Asp His Thr
 340 345 350
 Tyr Val Leu Glu Pro Gly Gln Asn Gly Pro Gly Ile Ser Met Phe Asp
 355 360 365
 Cys Met Val Gly Leu Gly Val Thr Ser Gly Ser Gln Ala Ala Arg Val
 370 375 380
 Ala Glu Leu Asp Gln Gln Arg Arg Gln Cys Leu Phe Asn Val Lys Ala
 385 390 395 400
 Thr Thr Gly Tyr Ser Asp Leu Asn Asp Pro His Met Asp Ile Pro Tyr
 405 410 415
 Asn Trp Gln Trp Thr Ser Thr Thr Gln Trp Lys Val Pro Ser Ala Ser
 420 425 430
 Trp Thr Ile Pro Gln Leu Pro Ala Asp Ala Gly Lys Lys Val Thr Ile
 435 440 445
 Lys Asn Ala Ile Asn Gly Asn Pro Leu Val Ala Pro Ala Gly Val Lys
 450 455 460
 His Asn Ser Asp Ile Tyr Ser Ala Pro Gly Glu Ala Ile Glu Phe Ile
 465 470 475 480
 Phe Val Gly Asp Tyr Asn Asn Glu Ser Tyr Leu Arg Ser Lys Lys Asp
 485 490 495
 Ala Asp Leu Phe Leu Ser Tyr Ser Ala Val Ser Gly Lys Gly Leu Leu
 500 505 510
 Tyr Asn Thr Pro Asn Gln Ala Gly Tyr Arg Val Lys Pro Ala Gly Val
 515 520 525
 Leu Trp Thr Ile Glu Asn Thr Tyr Trp Asn Asp Phe Leu Trp Phe Asn

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<400> 24
Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
  1                    5                10              15
His Asp Ser Gln Val Asp Ala Asp Val Lys Leu Asp Gly Ile Ser Tyr
      20                25              30
Lys Val Phe Ala Thr Thr Asp Asp Pro Leu Thr Gly Phe Gln Ala Thr
      35                40              45
Ala Tyr Gln Arg Gln Asp Thr Gly Glu Val Val Ile Ala Tyr Arg Gly

```

50	55	60
Thr Glu Phe Asp Arg	Glu Pro Val Arg Asp	Gly Gly Val Asp Ala Gly
65	70	75
Met Val Leu Leu Gly	Val Asn Ala Gln Ser	Pro Ala Ser Glu Val Phe
85	90	95
Thr Arg Glu Val-Ile	Glu Lys Ala Lys His	Glu Ala Glu Leu Asn Asp
100	105	110
Arg Glu Pro Lys Ile	Thr Val Thr Gly His	Ser Leu Gly Gly Thr Leu
115	120	125
Ala Glu Ile Asn Ala	Ala Lys Tyr Gly Leu	His Gly Glu Thr Phe Asn
130	135	140
Ala Tyr Gly Ala Ala	Ser Leu Lys Gly Ile	Pro Glu Gly Gly Asp Thr
145	150	155
Val Ile Asp His Val	Arg Ala Gly Asp Leu	Val Ser Ala Ala Ser Pro
165	170	175
His Tyr Gly Gln Val	Arg Val Tyr Ala	Gln Gln Asp Ile Asp Thr
180	185	190
Leu Gln His Ala Gly	Tyr Arg Asp Ser	Gly Ile Phe Ser Leu Arg
195	200	205
Asn Pro Ile Lys Ala	Thr Asp Phe Asp	Ala His Ala Ile Asp Asn Phe
210	215	220
Val Pro Asn Ser Lys	Leu Leu Gly Gln Ser	Ile Ile Ala Pro Glu Asn
225	230	235
Glu Ala Arg Tyr Glu	Ala His Lys Gly Met	Ile Asp Arg Tyr Arg Asp
245	250	255
Asp Val Ala Asp Ile	Arg Lys Gly Ile Ser	Ala Pro Trp Glu Ile Pro
260	265	270
Lys Ala Val Gly Glu	Leu Lys Asp Lys	Leu Glu His Glu Ala Phe Glu
275	280	285
Leu Ala Gly Lys Gly	Ile Leu Ala Val Glu	His Gly Val Ala Glu Val
290	295	300
Val His Glu Ala Lys	Glu Gly Phe Asp His	Leu Lys Glu Gly Leu His
305	310	315
His Val Arg Glu Glu	Ile Ser Glu Gly Ile	His Ala Val Glu Glu Lys
325	330	335
Ala Ser Ser Ala Trp	His Thr Leu Thr His	Pro Lys Glu Trp Phe Glu
340	345	350
His Asp Lys Pro Gln	Val Asn Leu Asp His	Pro Gln His Pro Asp Asn
355	360	365
Ala Leu Phe Lys Gln	Ala Gln Gly Ala Val	His Ala Leu Asp Ala Thr
370	375	380
Gln Gly Arg Thr Pro	Asp Arg Thr Ser Asp	Gln Ile Ala Gly Ser Leu
385	390	395
Val Val Ala Ala Arg	Arg Asp Gly Leu Glu	Arg Val Asp Arg Ala Val
405	410	415
Leu Ser Asp Asp Thr	Ser Arg Leu Tyr Gly	Val Gln Gly Ala Thr Asp
420	425	430
Ser Pro Leu Lys Gln	Phe Thr Glu Val Asn	Thr Thr Val Ala Ala Gln
435	440	445
Thr Ser Leu Gln Gln	Ser Ser Gln Ala Trp	Gln Gln Gln Ala Glu Ile
450	455	460
Ala Arg Gln Asn Gln	Ala Thr Ser Gln Ala	Gln Arg Met Glu Pro Gln
465	470	475
Val Pro Pro Gln Ala	Pro Ala His Gly Met	
485	490	

<210> 25

<211> 1098
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 25
 atgtgcgcca aagttaaagt agtcaaaaata aagacaaaaca caggcagccc aaacaaatac 60
 cacttcaaga acctcgtctt cgaaggcggc ggcgtgaaag gcattgccta tgtgggagcc 120
 cttaccaagc tcgacgagga aggcacacctt caaaacatta agcgcgtggc cggcacctca 180
 gcaggagcaa tgggtggcgt cctcgtcgga ttgggcttca ccgctaagga gataagcgac 240
 atcctgtggg acatcaaatt ccagaacttt ttagacaact catggggcgt gatacgcaac 300
 accaatcgtc tgctgacgga atacggctgg tataagggcg agtttttccg cgacctcatg 360
 gctgattaca tcaaaagaaa gacagacgat ggcgagatta ctttcgggga gttggaggcc 420
 atgagaaaag agggcaagcc cttcttgga atccatctgg ttggctccga cctcacgaca 480
 gggatttcca gagtgttcaa ctccaaaaaac accccaaatg tgaaagtcgc cgatgccgcc 540
 cgcacttcca tgtcgatacc gctgtttttc tccgctgtga gaggcgtgca aggcgacgac 600
 caccctctatg tggacgggtgg gctttttggac aactacgcca tcaagatttt cgaccagtcg 660
 aaactcgttt cagacaaaaa caacaaaagg aagaccgagt attacaacag gctcaaccag 720
 caagtgaacg cgaagcaaac gaaaagcaag acggaatctg tagagtatgt ctacaacaag 780
 gagactttgg gcttcgcgtt ggatgccaaa gaggacatca acctcttct caaccacgat 840
 gatgcccttc aaaaagaaat caagagtttc ttctcttaca ccaaagcttt ggtttccacg 900
 ctcacgatt tccagaacaa tgtacacctg cacagcgacg actggcagcg tacggtctac 960
 atcgacacac tcggtgtcag ctccattgac ttcggtctgt caaacacaac gaaacaagct 1020
 cttgtcgatt cgggctacaa ctacaccaca gcctacctcg actggtacaa caacgacgag 1080
 gataaagcca acaagtaa 1098

<210> 26
 <211> 365
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 26
 Met Cys Ala Lys Val Lys Val Val Lys Ile Lys Thr Asn Thr Gly Ser
 1 5 10 15
 Pro Asn Lys Tyr His Phe Lys Asn Leu Val Phe Glu Gly Gly Gly Val
 20 25 30
 Lys Gly Ile Ala Tyr Val Gly Ala Leu Thr Lys Leu Asp Glu Glu Gly
 35 40 45
 Ile Leu Gln Asn Ile Lys Arg Val Ala Gly Thr Ser Ala Gly Ala Met
 50 55 60
 Val Ala Val Leu Val Gly Leu Gly Phe Thr Ala Lys Glu Ile Ser Asp
 65 70 75 80
 Ile Leu Trp Asp Ile Lys Phe Gln Asn Phe Leu Asp Asn Ser Trp Gly
 85 90 95
 Val Ile Arg Asn Thr Asn Arg Leu Leu Thr Glu Tyr Gly Trp Tyr Lys
 100 105 110
 Gly Glu Phe Phe Arg Asp Leu Met Ala Asp Tyr Ile Lys Arg Lys Thr
 115 120 125
 Asp Asp Gly Glu Ile Thr Phe Gly Glu Leu Glu Ala Met Arg Lys Glu
 130 135 140
 Gly Lys Pro Phe Leu Glu Ile His Leu Val Gly Ser Asp Leu Thr Thr
 145 150 155 160

Gly Tyr Ser Arg Val Phe Asn Ser Lys Asn Thr Pro Asn Val Lys Val
 165 170 175
 Ala Asp Ala Ala Arg Ile Ser Met Ser Ile Pro Leu Phe Phe Ser Ala
 180 185 190
 Val Arg Gly Val Gln Gly Asp Asp His Leu Tyr Val Asp Gly Gly Leu
 195 200 205
 Leu Asp Asn Tyr Ala Ile Lys Ile Phe Asp Gln Ser Lys Leu Val Ser
 210 215 220
 Asp Lys Asn Asn Lys Arg Lys Thr Glu Tyr Tyr Asn Arg Leu Asn Gln
 225 230 235 240
 Gln Val Asn Ala Lys Ala Thr Lys Ser Lys Thr Glu Ser Val Glu Tyr
 245 250 255
 Val Tyr Asn Lys Glu Thr Leu Gly Phe Arg Leu Asp Ala Lys Glu Asp
 260 265 270
 Ile Asn Leu Phe Leu Asn His Asp Asp Ala Pro Gln Lys Glu Ile Lys
 275 280 285
 Ser Phe Phe Ser Tyr Thr Lys Ala Leu Val Ser Thr Leu Ile Asp Phe
 290 295 300
 Gln Asn Asn Val His Leu His Ser Asp Asp Trp Gln Arg Thr Val Tyr
 305 310 315 320
 Ile Asp Thr Leu Gly Val Ser Ser Ile Asp Phe Gly Leu Ser Asn Thr
 325 330 335
 Thr Lys Gln Ala Leu Val Asp Ser Gly Tyr Asn Tyr Thr Thr Ala Tyr
 340 345 350
 Leu Asp Trp Tyr Asn Asn Asp Glu Asp Lys Ala Asn Lys
 355 360 365

<210> 27

<211> 1287

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 27

gtgtcgattà	ccgtttaccg	gaagccctcc	ggcggggttg	gagcgatagt	tcctcaagcg	60
aaaattgaga	accttggttt	cgagggcggc	ggaccaaagg	gcctggtcta	tgctggcgcg	120
gtcgagggtc	tcggcgaaag	gggactgctg	gaagggatcg	caaatgtcgg	cggcgcttca	180
gcaggcgcca	tgaccgctct	agccgtcggt	ctgggactga	gccccaggga	aattcgcgcg	240
gtcgtcttta	accagaacat	tcgggacctc	accgatatcg	agaagaccgt	cgagccgtcc	300
tccgggatta	caggcatggt	caagagcgtg	ttcaagaagg	gttggcaggc	ggtgcgcaac	360
gtaaccggca	cctctgacga	gcgcggggcg	gggctctatc	gcggcgagaa	gttgagagcc	420
tggatcagag	acctgattgc	acagcgagtc	gaggcggggc	gctccgaggt	cctgagccga	480
gccgacgccg	atggacggaa	cttctatgag	aaagccgccc	caaagaaggg	cgccctgaca	540
tttgccgagc	ttgatcgggt	ggcgcaaatg	gcgccggggc	tgccggcttcg	ccgcctggcc	600
ttcaccggaa	ccaacttcac	gtcgaagaag	ctcgaagtgt	tcagtctgca	cgagaccccg	660
gacatgccga	tcgacgtcgc	ggtacgcata	tccgcatcgt	tgccatgggt	tttcaaattcc	720
gtgaaatgga	acggctccga	atacatagat	ggcggctgcc	tgtcgaactt	cccaatgccg	780
atattcgacg	tcgatcccta	tcgtggcgac	gcatacgtcg	aaatccggct	cggcatcttc	840
ggccagaacc	tcgcgacgct	cggcttcaag	gtcgcacagc	aggaggagat	ccgcgacatt	900
ctctggcgta	gccccgagag	cacgagcgac	ggctttttcc	aaggcatcct	gtcaagcgtg	960
aaagcttctg	cagaacactg	ggtcgtcggc	atcgacgtcg	aaggcgccac	ccgcgcgtcg	1020
aacgtggccg	ttcacggcaa	gtatgctcag	cgaacgatcc	agataccgga	cctcggatat	1080
agcacgttca	agttcgatct	ttcggacgct	gacaaggagc	gcatggccga	ggccggcgca	1140
aaggccacgc	gggaatggct	ggcgctgtac	ttcgacgacg	ccggaataga	ggtcgaattt	1200
tctgatccga	acgaattgcg	cggccagttg	tccgacgccg	cattcgacga	cctcagggat	1260

tcgttttcgag ccttgatcgc ggcctag

1287

<210> 28

<211> 428

<212> PRT

<213> Unknown -

<220>

<223> Obtained from an environmental sample.

<400> 28

Met	Ser	Ile	Thr	Val	Tyr	Arg	Lys	Pro	Ser	Gly	Gly	Phe	Gly	Ala	Ile
1				5				10						15	
Val	Pro	Gln	Ala	Lys	Ile	Glu	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Pro
			20					25						30	
Lys	Gly	Leu	Val	Tyr	Val	Gly	Ala	Val	Glu	Val	Leu	Gly	Glu	Arg	Gly
		35					40						45		
Leu	Leu	Glu	Gly	Ile	Ala	Asn	Val	Gly	Gly	Ala	Ser	Ala	Gly	Ala	Met
	50					55					60				
Thr	Ala	Leu	Ala	Val	Gly	Leu	Gly	Leu	Ser	Pro	Arg	Glu	Ile	Arg	Ala
65					70					75				80	
Val	Val	Phe	Asn	Gln	Asn	Ile	Ala	Asp	Leu	Thr	Asp	Ile	Glu	Lys	Thr
			85					90						95	
Val	Glu	Pro	Ser	Ser	Gly	Ile	Thr	Gly	Met	Phe	Lys	Ser	Val	Phe	Lys
			100					105						110	
Lys	Gly	Trp	Gln	Ala	Val	Arg	Asn	Val	Thr	Gly	Thr	Ser	Asp	Glu	Arg
		115					120						125		
Gly	Arg	Gly	Leu	Tyr	Arg	Gly	Glu	Lys	Leu	Arg	Ala	Trp	Ile	Arg	Asp
		130				135					140				
Leu	Ile	Ala	Gln	Arg	Val	Glu	Ala	Gly	Arg	Ser	Glu	Val	Leu	Ser	Arg
145					150					155					160
Ala	Asp	Ala	Asp	Gly	Arg	Asn	Phe	Tyr	Glu	Lys	Ala	Ala	Ala	Lys	Lys
			165						170					175	
Gly	Ala	Leu	Thr	Phe	Ala	Glu	Leu	Asp	Arg	Val	Ala	Gln	Met	Ala	Pro
			180					185					190		
Gly	Leu	Arg	Leu	Arg	Arg	Leu	Ala	Phe	Thr	Gly	Thr	Asn	Phe	Thr	Ser
		195				200						205			
Lys	Lys	Leu	Glu	Val	Phe	Ser	Leu	His	Glu	Thr	Pro	Asp	Met	Pro	Ile
	210					215					220				
Asp	Val	Ala	Val	Arg	Ile	Ser	Ala	Ser	Leu	Pro	Trp	Phe	Phe	Lys	Ser
225					230					235					240
Val	Lys	Trp	Asn	Gly	Ser	Glu	Tyr	Ile	Asp	Gly	Gly	Cys	Leu	Ser	Asn
			245						250					255	
Phe	Pro	Met	Pro	Ile	Phe	Asp	Val	Asp	Pro	Tyr	Arg	Gly	Asp	Ala	Ser
			260					265					270		
Ser	Lys	Ile	Arg	Leu	Gly	Ile	Phe	Gly	Gln	Asn	Leu	Ala	Thr	Leu	Gly
		275					280					285			
Phe	Lys	Val	Asp	Ser	Glu	Glu	Glu	Ile	Arg	Asp	Ile	Leu	Trp	Arg	Ser
	290					295					300				
Pro	Glu	Ser	Thr	Ser	Asp	Gly	Phe	Phe	Gln	Gly	Ile	Leu	Ser	Ser	Val
305					310					315					320
Lys	Ala	Ser	Ala	Glu	His	Trp	Val	Val	Gly	Ile	Asp	Val	Glu	Gly	Ala
				325					330					335	
Thr	Arg	Ala	Ser	Asn	Val	Ala	Val	His	Gly	Lys	Tyr	Ala	Gln	Arg	Thr
			340					345					350		
Ile	Gln	Ile	Pro	Asp	Leu	Gly	Tyr	Ser	Thr	Phe	Lys	Phe	Asp	Leu	Ser
		355					360					365			

```

Asp Ala Asp Lys Glu Arg Met Ala Glu Ala Gly Ala Lys Ala Thr Arg
 370                      375                      380
Glu Trp Leu Ala Leu Tyr Phe Asp Asp Ala Gly Ile Glu Val Glu Phe
385                      390                      395                      400
Ser Asp Pro Asn Glu Leu Arg Gly Gln Leu Ser Asp Ala Ala Phe Ala
          -405                      410                      415
Asp Leu Glu Asp Ser Phe Arg Ala Leu Ile Ala Ala
          420                      425

```

<210> 29

<211> 753

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 29

```

atgggaaacg gtgcagcagt tggttcgaat gataatggta gagaagaaag tgtttacgta      60
ctttctgtga tcgcctgtaa tgtttattat ttacaaaagt gtgaaggtgg ggcacgcgt      120
gatagcgtga ttagagaaat caatagccaa actcaacctt taggatatga gattgtagca      180
gattctattc gtgatgggtca tattggctct tttgcctgta agatggctgt ctttagaaat      240
aatggaaacg gcaatttgtt tttagcaatc aaagggactg atatgaataa tatcaatgac      300
ttgggtgaatg acctaaccat gatattagga ggtattgggt ctggttgcgc aatccaacca      360
acgattaaca tggcacaaga actcatcgac caatatggag tgaatttgat tacaggtcac      420
tcccttgtag gctacatgac tgagatcatc gccaccaatc gtggacttcc aggtattgca      480
ttttgcgcac caggttcaaa tgggtcccatt gtaaaattag gtggacaaga gacacctggc      540
tttcacaatg tgaactttga acatgatcca gcaggtaacg ttatgacggg ggtttatact      600
catgtccaat ggagtattta tgtaggatgt gatgggtatga ctcatgggtat tgaaaatatg      660
gtgaattatt ttaaagataa aagagattta accaatcgca atattcaagg aagaagtga      720
agtcataata cgggttatta ttacccaaaa taa                                753

```

<210> 30

<211> 250

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 30

```

Met Gly Asn Gly Ala Ala Val Gly Ser Asn Asp Asn Gly Arg Glu Glu
 1                      5                      10                      15
Ser Val Tyr Val Leu Ser Val Ile Ala Cys Asn Val Tyr Tyr Leu Gln
          20                      25                      30
Lys Cys Glu Gly Gly Ala Ser Arg Asp Ser Val Ile Arg Glu Ile Asn
          35                      40                      45
Ser Gln Thr Gln Pro Leu Gly Tyr Glu Ile Val Ala Asp Ser Ile Arg
          50                      55                      60
Asp Gly His Ile Gly Ser Phe Ala Cys Lys Met Ala Val Phe Arg Asn
          65                      70                      75                      80
Asn Gly Asn Gly Asn Cys Val Leu Ala Ile Lys Gly Thr Asp Met Asn
          85                      90                      95
Asn Ile Asn Asp Leu Val Asn Asp Leu Thr Met Ile Leu Gly Gly Ile
          100                      105                      110
Gly Ser Val Ala Ala Ile Gln Pro Thr Ile Asn Met Ala Gln Glu Leu
          115                      120                      125

```

```

Ile Asp Gln Tyr Gly Val Asn Leu Ile Thr Gly His Ser Leu Gly Gly
 130      135      140
Tyr Met Thr Glu Ile Ile Ala Thr Asn Arg Gly Leu Pro Gly Ile Ala
145      150      155      160
Phe Cys Ala Pro Gly Ser Asn Gly Pro Ile Val Lys Leu Gly Gly Gln
      -165      170      175
Glu Thr Pro Gly Phe His Asn Val Asn Phe Glu His Asp Pro Ala Gly
      180      185      190
Asn Val Met Thr Gly Val Tyr Thr His Val Gln Trp Ser Ile Tyr Val
      195      200      205
Gly Cys Asp Gly Met Thr His Gly Ile Glu Asn Met Val Asn Tyr Phe
      210      215      220
Lys Asp Lys Arg Asp Leu Thr Asn Arg Asn Ile Gln Gly Arg Ser Glu
225      230      235      240
Ser His Asn Thr Gly Tyr Tyr Tyr Pro Lys
      245      250

```

<210> 31

<211> 1422

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 31

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atgaaaaaga aattatgtac atgggctctc gtaacagcga tatcttcttg agttggtgcg      60
attccaaccg tagcatctgc ttgcggaatg ggtgaagtaa tgaaacagga ggatcaagag      120
cacaaacgtg tgaagagatg gtctgcggag catccgcacc atgctaataa aagcacgcac      180
ttatggattg ctcgaaatgc gattcaaatt atgagtcgta atcaagataa gacgggttcaa      240
gaaaatgaat tacaattctt aaaaatacct gaataataag agttatttga aagaggggctt      300
tatgatgccg attatcttga tgagttaaac gatggaggta caggtacaat cgggtattgat      360
gggctaatta aaggaggctg gaaatctcat ttctatgatc ctgatacgaa aaagaactat      420
aaaggagaag aagaaccaac agccctttcg caaggggata aatattttta attagcagga      480
gattatttta agaaagaaga ttggaaacaa gctttctatt atttaggtgt tgcgacgcat      540
tacttcacag atgctactca gccaatgcat gctgctaatt ttacagctgt cgacatgagt      600
gcaataaagt ttcatagcgc ttttgaaaat tatgtaacga cagttcagac accgtttgaa      660
gtgaaggatg ataagggaac atataatttg gtcaattctg atgatccgaa gcagtggata      720
catgaaacag cgaaactcgc aaaagcagaa attatgaata ttactagtga taatattaaa      780
tctcaatata ataaaggaaa caaagatctt tggcaacaag aagttatgcc agctgtccag      840
aggagttag agaaagcgca aagaaacacg gcgggattta ttcatttatg gtttaaaaaca      900
tatgttgcca aaactgcagc tgaagatatt gaaactacac aggtaaaaga ttctaattgga      960
gaagcaatac aagaacaaaa aaaatactac gttgtgccta gtgagttttt aaatagaggt      1020
ttgacctttg aggtatatgc ttcgaatgac tacgcactat tatctaataa cgtagatgat      1080
aataaaagttc atggtacacc tggtcagttt gtttttgata aagagaataa cggaattggt      1140
catcggggag aaagtgtact gctgaaaatg acgcaatcta actatgatga ttatgtattt      1200
cttaattact ctaatatgac aaattgggta catcttgcca aacgaaaaac aaatactgca      1260
cagttttaaag tgtatccaaa tccggataac tcatctgaat atttcctata tacagatgga      1320
taccgggtaa attatcaaga aaatggtaat gggaagagct ggattgagtt aggaaagaaa      1380
acggataaac cgaaagcgtg gaaatttcaa caggcagaat aa      1422

```

<210> 32

<211> 473

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(20)

<400> 32

```

Met Lys Lys Lys Leu Cys Thr Trp Ala Leu Val Thr Ala Ile Ser Ser
 1      5      10      15
Gly Val Val Ala Ile Pro Thr Val Ala Ser Ala Cys Gly Met Gly Glu
 20      25      30
Val Met Lys Gln Glu Asp Gln Glu His Lys Arg Val Lys Arg Trp Ser
 35      40      45
Ala Glu His Pro His His Ala Asn Glu Ser Thr His Leu Trp Ile Ala
 50      55      60
Arg Asn Ala Ile Gln Ile Met Ser Arg Asn Gln Asp Lys Thr Val Gln
 65      70      75      80
Glu Asn Glu Leu Gln Phe Leu Lys Ile Pro Glu Tyr Lys Glu Leu Phe
 85      90      95
Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly
100      105      110
Gly Thr Gly Thr Ile Gly Ile Asp Gly Leu Ile Lys Gly Gly Trp Lys
115      120      125
Ser His Phe Tyr Asp Pro Asp Thr Lys Lys Asn Tyr Lys Gly Glu Glu
130      135      140
Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly
145      150      155      160
Asp Tyr Phe Lys Lys Glu Asp Trp Lys Gln Ala Phe Tyr Tyr Leu Gly
165      170      175
Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala
180      185      190
Asn Phe Thr Ala Val Asp Met Ser Ala Ile Lys Phe His Ser Ala Phe
195      200      205
Glu Asn Tyr Val Thr Thr Val Gln Thr Pro Phe Glu Val Lys Asp Asp
210      215      220
Lys Gly Thr Tyr Asn Leu Val Asn Ser Asp Asp Pro Lys Gln Trp Ile
225      230      235      240
His Glu Thr Ala Lys Leu Ala Lys Ala Glu Ile Met Asn Ile Thr Ser
245      250      255
Asp Asn Ile Lys Ser Gln Tyr Asn Lys Gly Asn Lys Asp Leu Trp Gln
260      265      270
Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Lys Ala Gln Arg
275      280      285
Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Tyr Val Gly Lys
290      295      300
Thr Ala Ala Glu Asp Ile Glu Thr Thr Gln Val Lys Asp Ser Asn Gly
305      310      315      320
Glu Ala Ile Gln Glu Gln Lys Lys Tyr Tyr Val Val Pro Ser Glu Phe
325      330      335
Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Ser Asn Asp Tyr Ala
340      345      350
Leu Leu Ser Asn His Val Asp Asp Asn Lys Val His Gly Thr Pro Val
355      360      365
Gln Phe Val Phe Asp Lys Glu Asn Asn Gly Ile Val His Arg Gly Glu
370      375      380
Ser Val Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asp Tyr Val Phe
385      390      395      400
Leu Asn Tyr Ser Asn Met Thr Asn Trp Leu His Leu Ala Lys Arg Lys

```

```

                405                410                415
Thr Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asp Asn Ser Ser
                420                425                430
Glu Tyr Phe Leu Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Asn
                435                440                445
Gly Asn Gly Lys-Ser Trp Ile Glu Leu Gly Lys Lys Thr Asp Lys Pro
                450                455                460
Lys Ala Trp Lys Phe Gln Gln Ala Glu
465                470

```

<210> 33

<211> 792

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 33

```

atgagagcac tcgtgctggc aggcgggtgga gccaagggct cgtttcaagt gggcgtgctg      60
cagcgggttca ccccgcgaga cttcgggtctc gtgggtgggat gctcgggtcgg agctttaaac      120
gccgcgggggt ttgcccacct gggtagccat ggcatacaaag acctctggca agggatcagg      180
agtcgagatg acatcctgtc ccgtgtctgg tggccgtttg gtcagacgg gatcttctcg      240
cagaagcctc ttgaaaagct cgtctccaaa gcatgcacgg gtcctgctcg ggtgccggtc      300
cacgtggcga cgggtctgcct tgaacgcggc cttgtccact acgggatctc cggggactct      360
gactttgaga agaaagtgct ggcacgcggc gcgatcccag gcgtggtgaa gccagttaag      420
atccatggcg accactacgt cgacgggtgg gtcagagaga tctgtccgct gcgtcgagcc      480
atcgacctgg gcgccacgga gatcacagtc atcatgtgcg ctccggaata catcccgacc      540
tggtcgcgta gttcctcgcct gttcccgttt gtgaacgtga tgatccggtc tctcgacatc      600
ctgaccgatg agatcctggg caacgacatc gccgagtgcg tggcaaagaa caagatgcca      660
ggtaaacgtc acgtaaagct caccatctac cggccgaaga aagagctcat gggcacgctc      720
gactttgacc ccaaagccat cgccgcaggg atcaaggcag gcaccgaagc ccagccaagg      780
ttctgggagt aa                                     792

```

<210> 34

<211> 263

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 34

```

Met Arg Ala Leu Val Leu Ala Gly Gly Gly Ala Lys Gly Ser Phe Gln
1          5          10          15
Val Gly Val Leu Gln Arg Phe Thr Pro Ala Asp Phe Gly Leu Val Val
20          25          30
Gly Cys Ser Val Gly Ala Leu Asn Ala Ala Gly Phe Ala His Leu Gly
35          40          45
Ser His Gly Ile Lys Asp Leu Trp Gln Gly Ile Arg Ser Arg Asp Asp
50          55          60
Ile Leu Ser Arg Val Trp Trp Pro Phe Gly Ser Asp Gly Ile Phe Ser
65          70          75          80
Gln Lys Pro Leu Glu Lys Leu Val Ser Lys Ala Cys Thr Gly Pro Ala
85          90          95
Arg Val Pro Val His Val Ala Thr Val Cys Leu Glu Arg Gly Leu Val
100         105         110

```

```

His Tyr Gly Ile Ser Gly Asp Ser Asp Phe Glu Lys Lys Val Leu Ala
      115              120              125
Ser Ala Ala Ile Pro Gly Val Val Lys Pro Val Lys Ile His Gly Asp
      130              135              140
His Tyr Val Asp Gly Gly Val Arg Glu Ile Cys Pro Leu Arg Arg Ala
      145              150              155
Ile Asp Leu Gly Ala Thr Glu Ile Thr Val Ile Met Cys Ala Pro Glu
      165              170              175
Tyr Ile Pro Thr Trp Ser Arg Ser Ser Ser Leu Phe Pro Phe Val Asn
      180              185              190
Val Met Ile Arg Ser Leu Asp Ile Leu Thr Asp Glu Ile Leu Val Asn
      195              200              205
Asp Ile Ala Glu Cys Val Ala Lys Asn Lys Met Pro Gly Lys Arg His
      210              215              220
Val Lys Leu Thr Ile Tyr Arg Pro Lys Lys Glu Leu Met Gly Thr Leu
      225              230              235
Asp Phe Asp Pro Lys Ala Ile Ala Ala Gly Ile Lys Ala Gly Thr Glu
      245              250              255
Ala Gln Pro Arg Phe Trp Glu
      260

```

<210> 35

<211> 1389

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 35

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atgcccgagc cgcccgccgc atgccgttgc gattgcgcct gcgagcgcca ccagcacctt      60
ttttgcaagg gacccaagcg tatcctcgcg ctgcgacggcg gcggcggtcg cggcgccgctc      120
agcgctcgcat tcctcgaaacg gatcgaggcg gtgctcgagg cccggctcgg acgcaagggtg      180
ctgctcgggcc actggttcga cctgatcggc ggcacctcga cgggcgccat catcggcggc      240
gcgctggcgca tgggattcgc ggccgaggac gtccaaagat tctatcacga gctcgcgccg      300
cgggtgttca ggcattccgct cctgcgcata ggtctcctgc gcccgttccg cgcgaaattc      360
gacgcccgcg tgctgcgcga ggagatccac cgcatacatc gcgacagcac gctcggcgac      420
aaagcgctga tgaccggggt cgcgctcgtc gccaaagcga tggacaccgg cagcacctgg      480
atcctcgcca acaacaagcg cagcaaatac tgggaagggc gggacggcgt cgtcggcaac      540
aaggattatc tcctcggcag cctcattcgc gcgagcacgg cggcgccgct gtatttcgac      600
cccaggaggg tcgtgatcgc ggaggcccg caggacatcg agggcatcag gggcctgttc      660
gtcgacggcg gcgtcacgcc gcacaacaat ccttcgctcg cgatgctgct gctggcgctg      720
ctcgacgcct accggctgcg ctgggaaacg ggaccggaca agctcacggt cgtctcgatc      780
ggcactggaa cgcatacgca ccgcgtcggt cccgacacgc tcggcatggg caagaacgcg      840
aagatcgcgc tgcgcgccat gagctcgctg atgaacgacg tgcacgagct cgcgctcacg      900
cagatgcagt acctcggtga gacgctcacc ccgtggcgca tcaacgacga gctcggcgac      960
atgcggaccg agcggccgcc gcaaggcaag ctcttcgctt tcctccgcta cgacgtccgg      1020
ctggagctcg attggatcaa cgaggacgag gacgcgccgg gcaagatcaa gaacaaattc      1080
aagcgcgagc tgaccgagac cgacatgatc cgcctgcgca gcctcgacga tccgacgacc      1140
atcccggacc tctacatgct tgcccaggtc gcggccgagg agcaggtcaa ggcggagcac      1200
tggctcggcg acgtgccgga gtggagcgaa ggcgcgcgcc cgtgtgcgcc gcgccggcac      1260
ctgccgccga cgccgcccgg ccgctccgag gattcgcgcg gcttcggggc cgagaaggcc      1320
gtcggcgagt ggctcagttt tgcgcgcgcg aacatcacgc gcctcatgtc gcggaagccg      1380
ccgggttga

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<210> 36

<211> 462

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 36

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Met Pro Glu Pro Pro Ala Ala Cys Arg Cys Asp Cys Ala Cys Glu Arg
 1          5          10          15
Asp Gln His Leu Phe Cys Lys Gly Pro Lys Arg Ile Leu Ala Leu Asp
          20          25          30
Gly Gly Gly Val Arg Gly Ala Val Ser Val Ala Phe Leu Glu Arg Ile
          35          40          45
Glu Ala Val Leu Glu Ala Arg Leu Gly Arg Lys Val Leu Leu Gly His
          50          55          60
Trp Phe Asp Leu Ile Gly Gly Thr Ser Thr Gly Ala Ile Ile Gly Gly
65          70          75          80
Ala Leu Ala Met Gly Phe Ala Ala Glu Asp Val Gln Arg Phe Tyr His
          85          90          95
Glu Leu Ala Pro Arg Val Phe Arg His Pro Leu Leu Arg Ile Gly Leu
          100          105          110
Leu Arg Pro Phe Arg Ala Lys Phe Asp Ala Arg Leu Leu Arg Glu Glu
          115          120          125
Ile His Arg Ile Ile Gly Asp Ser Thr Leu Gly Asp Lys Ala Leu Met
          130          135          140
Thr Gly Phe Ala Leu Val Ala Lys Arg Met Asp Thr Gly Ser Thr Trp
145          150          155          160
Ile Leu Ala Asn Asn Lys Arg Ser Lys Tyr Trp Glu Gly Arg Asp Gly
          165          170          175
Val Val Gly Asn Lys Asp Tyr Leu Leu Gly Ser Leu Ile Arg Ala Ser
          180          185          190
Thr Ala Ala Pro Leu Tyr Phe Asp Pro Glu Glu Val Val Ile Ala Glu
          195          200          205
Ala Arg Lys Asp Ile Glu Gly Ile Arg Gly Leu Phe Val Asp Gly Gly
          210          215          220
Val Thr Pro His Asn Asn Pro Ser Leu Ala Met Leu Leu Leu Ala Leu
225          230          235          240
Leu Asp Ala Tyr Arg Leu Arg Trp Glu Thr Gly Pro Asp Lys Leu Thr
          245          250          255
Val Val Ser Ile Gly Thr Gly Thr His Arg Asp Arg Val Val Pro Asp
          260          265          270
Thr Leu Gly Met Gly Lys Asn Ala Lys Ile Ala Leu Arg Ala Met Ser
          275          280          285
Ser Leu Met Asn Asp Val His Glu Leu Ala Leu Thr Gln Met Gln Tyr
          290          295          300
Leu Gly Glu Thr Leu Thr Pro Trp Arg Ile Asn Asp Glu Leu Gly Asp
305          310          315          320
Met Arg Thr Glu Arg Pro Pro Gln Gly Lys Leu Phe Arg Phe Leu Arg
          325          330          335
Tyr Asp Val Arg Leu Glu Leu Asp Trp Ile Asn Glu Asp Glu Glu Arg
          340          345          350
Arg Arg Lys Ile Lys Asn Lys Phe Lys Arg Glu Leu Thr Glu Thr Asp
          355          360          365
Met Ile Arg Leu Arg Ser Leu Asp Asp Pro Thr Thr Ile Pro Asp Leu
          370          375          380
Tyr Met Leu Ala Gln Val Ala Ala Glu Glu Gln Val Lys Ala Glu His
385          390          395          400

```


Trp Leu Gly Asp Val Pro Glu Trp Ser Glu Gly Ala Arg Pro Cys Ala
 405 410 415
 Pro Arg Arg His Leu Pro Pro Thr Pro Pro Gly Arg Ser Glu Asp Ser
 420 425 430
 Ala Arg Phe Arg Ala Glu Lys Ala Val Gly Glu Trp Leu Ser Phe Ala
 435 440 445
 Arg Ala Asn Ile Thr Arg Leu Met Ser Arg Lys Pro Pro Gly
 450 455 460

<210> 37

<211> 1329

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 37

atgagaaatt	tcagcaaggg	attgaccagt	atdddgctta	gcatagcgac	atccaccagt	60
gcatggcct	ttaccagat	cggggccggc	ggagcgattc	cgatgggcca	tgagtggcta	120
acccgccgt	cggcgtgga	actgctgaat	gccgacaatc	tggtcggcaa	tgaccgccgc	180
gaccacgct	tgggctggag	cgaaggtctc	gccaacaatc	tcgatctctc	gaatgcccag	240
aacgaagtgc	agcgcatcaa	gagcattacc	aagagccacg	ccctgtatga	gccgcgttac	300
gatgacgttt	tcgccgccat	cgtcggcgag	cgctgggttg	ataccgccgg	tttcaacgtg	360
gccaaggcca	ccgtcggcaa	gacgattgc	ttcagcgccg	tcgcgcaaga	gcccgccgat	420
gtgcaacaag	accatttcat	gcgcggttat	gacgacgtgg	gtggacaagg	gggcgtgaac	480
gctgcccgc	gcgcgcagca	gcgctttatc	aatcacttcg	tcaacgcagc	catggccgaa	540
gagaagagca	tcaaggcatg	ggatggcggc	ggttattctt	cgctggaaaa	agtcagccac	600
aactacttct	tgtdtggccg	cgccgttcat	ttgttccagg	attctttcag	ccccgaacac	660
accgtgccc	tgcctgaaga	caattacgtc	aaagtccgtc	aggtcaaggc	gtatctctgc	720
tctgaagggt	ccgaacagca	tacgcacaac	acgcaagatg	ccatcaactt	caccagcggc	780
gatgtcatct	ggaacagaa	caccgcgtct	gatgcaggct	ggagcaccta	caaggccagc	840
aacatgaagc	cgggtggcatt	ggttgccctc	gaagccagca	aagatttggt	ggccgccttt	900
attcgcacca	tggccgtttc	ccgcgaggag	cgtcgcgccc	tcgccgaaca	ggaagcgcag	960
gctctcgtca	atcactgggt	gtcgttcgac	gaacaggaaa	tgctgaactg	gtacgaagaa	1020
gaagagcacc	gcgatcatat	gtacgtcaag	gaaccgggcc	agagcggccc	aggttcgtcg	1080
ttattcgatt	gcatgggttg	tctgggtgtg	gcctcgggca	gtcaggcgca	acgggtggcg	1140
gaactcgatc	agcaacgccg	ccaatgtttg	ttcaacgtca	aggccgctac	tggttatggc	1200
gatctgaatg	atccacacat	ggatattccg	tacaactggc	aatgggtgtc	gtcgacgcaa	1260
tggaaaatcc	ctgcggccga	ctggaaaatc	ccgcagctgc	ccgccgattc	agggaaatca	1320
gtcgtcatc						1329

<210> 38

<211> 443

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(23)

<400> 38

Met	Arg	Asn	Phe	Ser	Lys	Gly	Leu	Thr	Ser	Ile	Leu	Leu	Ser	Ile	Ala
1				5				10					15		
Thr	Ser	Thr	Ser	Ala	Met	Ala	Phe	Thr	Gln	Ile	Gly	Ala	Gly	Gly	Ala

<210>	39
<211>	1335
<212>	DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 39

atggccaacc	ccatcgatcat	catccacggc	tggagcgacg	acttcggctc	gttcgcaag	60
ctgcgcgact	tcctctccac	caacctcggc	gttcggcgga	agatcctcaa	gctcggcgac	120
tggatctcgc	tcgacgacga	cgtcgggtac	gccgacatcg	cgatggcgct	ggaacgcgcg	180
tggaaggcgg	agaaactgcc	gaccgcggcg	cgttcggtcg	acgtcgctcg	gcacagcacc	240
ggcgcgctgg	tgggtgcgga	atggatgacg	cgctaccacg	cgcccgaaac	cgtgccgatc	300
cagegcttcc	tgcacctggc	gccggccaac	ttcgggtcgc	acctcgcgca	caagggccgc	360
tcgttcatcg	gccgcgcggt	gaagggctgg	aagaccggct	tcgaaaccgg	caccgcgcatc	420
ctgcgcgggc	tggaactcgc	ctcgccctac	tcgcgcgcgc	tggccgagcg	cgacctgttc	480
gtggcgccgt	cgaagcgctg	gtacggcgcc	ggccgcgcatc	tcgccaccgt	gctggtcggc	540
aacagcgggt	actccggcat	ccaggccatc	gccaacgagg	acggctccga	cggcaccgtg	600
cgcacgcca	ccgccaacct	gcaggcggcg	cttgcggaagg	tgggtgttccc	gcccgccccg	660
gtcgcgcggg	tggtgcagtt	ccgcaacatc	gcggggcgcca	ccgcgttcgc	catcgctcgac	720
ggcgacaacc	attccgacat	caccatgaag	gacaagccgt	cgaagaccgg	catccgcgag	780
gaactgatcc	tcggcgcgct	gaaggtgcgc	gacgccgact	tccccgagaa	cgccgacggc	840
gcgttcccg	ggcaggcgaa	gctcgacgcg	aaggccgggtg	cggccaagg	gtcttcgccc	900
gggcgccaga	acaccgtggt	gcacctcacc	gacagcttcg	gcgacgacgt	cgctcgatttc	960
ttcttcgagt	tctggcgag	cgaacgcagc	gacaaggtgt	tcgagcagcg	cttctacaag	1020
gacgtcatcg	acgacgtgca	cgtgtacgac	ggcaacggcg	cgtggcgctc	gctcaacctc	1080
gacctcgaca	agttcgaggc	gctgcgcaag	gacccgaagc	tcggcttcga	gaaactgctg	1140
gtcagcgtgt	tcgcctcgcc	cgcgaagaag	ggcgacgcca	aggtcggcta	cagcaccgcc	1200
accggccgcg	acatcggcgc	ctggcacgtc	gaaggccgtg	acttcgccaa	ggccttcacg	1260
ccgcaccgca	ccctgttcgt	cgacatcgag	atcccacgca	tcgtcgacga	cgcggtgttc	1320
cggttccggg	aatag					1335

<210> 40

<211> 444

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 40

Met	Ala	Asn	Pro	Ile	Val	Ile	Ile	His	Gly	Trp	Ser	Asp	Asp	Phe	Gly
1			5					10						15	
Ser	Phe	Arg	Lys	Leu	Arg	Asp	Phe	Leu	Ser	Thr	Asn	Leu	Gly	Val	Pro
			20					25					30		
Ala	Lys	Ile	Leu	Lys	Leu	Gly	Asp	Trp	Ile	Ser	Leu	Asp	Asp	Asp	Val
			35				40						45		
Gly	Tyr	Ala	Asp	Ile	Ala	Met	Ala	Leu	Glu	Arg	Ala	Trp	Lys	Ala	Glu
			50				55				60				
Lys	Leu	Pro	Thr	Ala	Pro	Arg	Ser	Val	Asp	Val	Val	Val	His	Ser	Thr
						70				75				80	
Gly	Ala	Leu	Val	Val	Arg	Glu	Trp	Met	Thr	Arg	Tyr	His	Ala	Pro	Glu
						85				90				95	
Thr	Val	Pro	Ile	Gln	Arg	Phe	Leu	His	Leu	Ala	Pro	Ala	Asn	Phe	Gly
						100				105				110	
Ser	His	Leu	Ala	His	Lys	Gly	Arg	Ser	Phe	Ile	Gly	Arg	Ala	Val	Lys
						115				120			125		
Gly	Trp	Lys	Thr	Gly	Phe	Glu	Thr	Gly	Thr	Arg	Ile	Leu	Arg	Gly	Leu
						130				135				140	

Glu Leu Ala Ser Pro Tyr Ser Arg Ala Leu Ala Glu Arg Asp Leu Phe
 145 150 155 160
 Val Ala Pro Ser Lys Arg Trp Tyr Gly Ala Gly Arg Ile Leu Ala Thr
 165 170 175
 Val Leu Val Gly Asn Ser Gly Tyr Ser Gly Ile Gln Ala Ile Ala Asn
 180- 185 190
 Glu Asp Gly Ser Asp Gly Thr Val Arg Ile Gly Thr Ala Asn Leu Gln
 195 200 205
 Ala Ala Leu Ala Lys Val Val Phe Pro Pro Gly Pro Val Ala Pro Val
 210 215 220
 Val Gln Phe Arg Asn Ile Ala Gly Ala Thr Ala Phe Ala Ile Val Asp
 225 230 235 240
 Gly Asp Asn His Ser Asp Ile Thr Met Lys Asp Lys Pro Ser Lys Thr
 245 250 255
 Gly Ile Arg Glu Glu Leu Ile Leu Gly Ala Leu Lys Val Arg Asp Ala
 260 265 270
 Asp Phe Pro Glu Asn Ala Asp Gly Ala Phe Pro Trp Gln Ala Lys Leu
 275 280 285
 Asp Ala Lys Ala Gly Ala Ala Lys Val Ser Ser Pro Gly Arg Gln Asn
 290 295 300
 Thr Val Val His Leu Thr Asp Ser Phe Gly Asp Asp Val Val Asp Phe
 305 310 315 320
 Phe Phe Glu Phe Trp Arg Ser Glu Arg Ser Asp Lys Val Phe Glu Gln
 325 330 335
 Arg Phe Tyr Lys Asp Val Ile Asp Asp Val His Val Tyr Asp Gly Asn
 340 345 350
 Gly Ala Trp Arg Ser Leu Asn Leu Asp Lys Phe Glu Ala Leu
 355 360 365
 Arg Lys Asp Pro Lys Leu Gly Phe Glu Lys Leu Leu Val Ser Val Phe
 370 375 380
 Ala Ser Pro Ala Lys Lys Gly Asp Ala Lys Val Gly Tyr Ser Thr Ala
 385 390 395 400
 Thr Gly Arg Asp Ile Gly Ala Trp His Val Glu Gly Arg Asp Phe Ala
 405 410 415
 Lys Ala Phe Thr Pro His Arg Thr Leu Phe Val Asp Ile Glu Ile Pro
 420 425 430
 Arg Ile Val Asp Asp Ala Val Phe Arg Phe Arg Glu
 435 440

<210> 41

<211> 1419

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 41

atgacgctcc	gatcaacgga	ctatgcgctg	ctggcgccag	agagctacca	cgacagccag	60
gtggacgccg	acgtcaagct	ggatggcgctg	gcgtataaag	tcttcgccac	caccagcgac	120
gggctcaccg	gattccaggc	cacggcctac	cagcgccagg	acaccggcga	ggtagtgatt	180
gcgtaccgcg	gcacggagtt	tgatcgcgag	cccgtccgcg	acggcggcgt	cgatgcgggc	240
atggtgctgc	tcggtgtcaa	cgcacaggca	ccagcgctcg	aagtgttcac	cgggcaagtg	300
atcgagaagg	cgaaacacga	agccgagctc	aacgaccgcg	aaccgcagat	caccgtcacc	360
ggccattccc	tcggcgccac	cctcgccgag	atcaacgccg	cgaagtacgg	cctccatggc	420
gaaaccttca	acgcctacgg	cgcagccagc	ctcaagggtg	ttccggaggg	cggcgatacc	480
gtcatcgacc	acgtccgtgc	cggcgatctc	gtcagcgcg	ccagccccc	ctacgggcag	540

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gtacgcgtct acgcggcgca gcaggacatc gatacgtgc aacacgccgg ttaccgcgat      600
gacagcggca tcctcagctt gcgcaaccgg atcaaggcca cggatttcga tgcccatgcc      660
atcgataact tcgtgcccaa cagcaagctg ctcggtcagt cgatcatcgc gccggaaaac      720
gtggcgcggtt acgatgcccc caaaggcatg gtcgaccgtt accgcgatga cgtggccgat      780
atccgcaagg gcatctcggc gccctgggaa atccccaagg ccatcggcga gctgaaggac      840
accctggagc acgaagcctt cgaactcgcc ggcaagggca ttctcgcggt ggagcacggc      900
ttcgaacatc tcaaggagga gatcggcgaa ggcattccac ccgtggagga gaaagcttcc      960
agcgcgtggc ataccctcac ccatcccaag gaatggttcg agcacgataa acccaaggtg     1020
accctggacc acccggacca ccccgaccat gccctgttca agcaggcgca gggcgcggtg     1080
cacacagtcg atgcctcgca cggccgcacc cctgacaaga ccagcgacca gatcgccggc     1140
tcgctgggtg tatcggcacg ccgtgacggc cttgagcggg tagaccgcgc tgtactcagc     1200
gatgacgcca accgcctgta cgggtgtgcg ggtgcggtgg actcgccgct gaagcaggtc     1260
accgaagtga acaccgccac cgccgcgcag acatcgctcc agcagagcag cgtggcctgg     1320
cagcaacagg cagaaatcgc gcgtcagaac caggcggcaa gccaggctca gcgcatggac     1380
cagcaggtgc cgccgcaggc acccgcgcac ggcattgtaa      1419

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<210> 42

<211> 472

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 42

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Met Thr Leu Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
 1          5          10          15
His Asp Ser Gln Val Asp Ala Asp Val Lys Leu Asp Gly Val Ala Tyr
          20          25          30
Lys Val Phe Ala Thr Thr Ser Asp Gly Leu Thr Gly Phe Gln Ala Thr
          35          40          45
Ala Tyr Gln Arg Gln Asp Thr Gly Glu Val Val Ile Ala Tyr Arg Gly
          50          55          60
Thr Glu Phe Asp Arg Glu Pro Val Arg Asp Gly Val Asp Ala Gly
65          70          75          80
Met Val Leu Leu Gly Val Asn Ala Gln Ala Pro Ala Ser Glu Val Phe
          85          90          95
Thr Arg Gln Val Ile Glu Lys Ala Lys His Glu Ala Glu Leu Asn Asp
          100          105          110
Arg Glu Pro Gln Ile Thr Val Thr Gly His Ser Leu Gly Gly Thr Leu
          115          120          125
Ala Glu Ile Asn Ala Ala Lys Tyr Gly Leu His Gly Glu Thr Phe Asn
          130          135          140
Ala Tyr Gly Ala Ala Ser Leu Lys Gly Ile Pro Glu Gly Gly Asp Thr
145          150          155          160
Val Ile Asp His Val Arg Ala Gly Asp Leu Val Ser Ala Ala Ser Pro
          165          170          175
His Tyr Gly Gln Val Arg Val Tyr Ala Ala Gln Gln Asp Ile Asp Thr
          180          185          190
Leu Gln His Ala Gly Tyr Arg Asp Asp Ser Gly Ile Leu Ser Leu Arg
          195          200          205
Asn Pro Ile Lys Ala Thr Asp Phe Asp Ala His Ala Ile Asp Asn Phe
          210          215          220
Val Pro Asn Ser Lys Leu Leu Gly Gln Ser Ile Ile Ala Pro Glu Asn
225          230          235          240
Val Ala Arg Tyr Asp Ala His Lys Gly Met Val Asp Arg Tyr Arg Asp
          245          250          255

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Asp Val Ala Asp Ile Arg Lys Gly Ile Ser Ala Pro Trp Glu Ile Pro
 260 265 270
 Lys Ala Ile Gly Glu Leu Lys Asp Thr Leu Glu His Glu Ala Phe Glu
 275 280 285
 Leu Ala Gly Lys Gly Ile Leu Ala Val Glu His Gly Phe Glu His Leu
 290 295 300
 Lys Glu Glu Ile Gly Glu Gly Ile His Ala Val Glu Glu Lys Ala Ser
 305 310 315 320
 Ser Ala Trp His Thr Leu Thr His Pro Lys Glu Trp Phe Glu His Asp
 325 330 335
 Lys Pro Lys Val Thr Leu Asp His Pro Asp His Pro Asp His Ala Leu
 340 345 350
 Phe Lys Gln Ala Gln Gly Ala Val His Thr Val Asp Ala Ser His Gly
 355 360 365
 Arg Thr Pro Asp Lys Thr Ser Asp Gln Ile Ala Gly Ser Leu Val Val
 370 375 380
 Ser Ala Arg Arg Asp Gly Leu Glu Arg Val Asp Arg Ala Val Leu Ser
 385 390 395 400
 Asp Asp Ala Asn Arg Leu Tyr Gly Val Gln Gly Ala Val Asp Ser Pro
 405 410 415
 Leu Lys Gln Val Thr Glu Val Asn Thr Ala Thr Ala Ala Gln Thr Ser
 420 425 430
 Leu Gln Gln Ser Ser Val Ala Trp Gln Gln Gln Ala Glu Ile Ala Arg
 435 440 445
 Gln Asn Gln Ala Ala Ser Gln Ala Gln Arg Met Asp Gln Gln Val Pro
 450 455 460
 Pro Gln Ala Pro Ala His Gly Met
 465 470

<210> 43

<211> 1287

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 43

atgtcgatta	cogttttaccg	gaagccctcc	ggcggggtttg	gagcgatagt	tcctcaagcg	60
aaaattgaga	accttggttt	cgagggcggc	ggaccaaagg	gcctggtcta	tgctggcgcg	120
gtcgagggttc	tcggtgaaag	gggactgctg	gaagggatcg	caaattgctcg	cggcgcttca	180
gcaggcgcca	tgaccgctct	agccgtcggg	ctgggactga	gccccaggga	aattcgcgcg	240
gtcgtcttta	accagaacat	tcgggacctc	accgatatcg	agaagaccgt	cgagccgtcc	300
tccgggatca	caggcatgtt	caagagcgtg	ttcaagaagg	gttggcaggc	ggtgcgcaac	360
gtaaccggca	cctctgacga	gcgcggggcg	gggctctatc	gcggcgagaa	gttgcgagcc	420
tggatcagag	acctgattgc	acagcgagtc	gaggcagggc	gctcagaggt	gctgagccga	480
gccgacgccg	acggggcgaa	cttctatgag	aaagccgccg	caaagaaggg	cgccctgaca	540
tttgccgaac	ttgatcgggt	ggcgcaaatg	gcgccggggc	tgcggtctcg	ccgcctggcc	600
ttcaccggaa	ccaacttcac	gtcgaagaag	ctcgaagtgt	tcagtctgca	cgagaccccg	660
gacatgccga	tcgacgtcgc	ggtacgcata	tcggcatcgt	tgccatgggt	tttcaaatcc	720
gtgaaatgga	acggctccga	atacatagat	ggcggatgcc	tgctgaactt	cccaatgccg	780
atattcgacg	tcgatcccta	tcgtggcgac	gcatactcga	agatccggct	cggcattctc	840
ggccagaacc	tcgcgacgct	cggcttcaag	gtcgcacagc	aggaggagat	ccgcgacatc	900
ctctggcgta	gccccgagag	cacgagcgac	ggctttttcc	aaggcatcct	gtcaagcggtg	960
aaagcctcgg	cagaacactg	ggtcgtcggc	atcgatgtcg	agggcgccac	ccgcgcgtcg	1020
aacgtggccg	ttcacggcaa	gtatgctcag	cgaacgatcc	agataccgga	cctcggatat	1080
agcacgttca	agttcgtatc	ctcagacgcg	gacaaggagc	gcatggccga	ggccggcgca	1140

aaggccacgc ggggaatggct ggcgctgtac ttcgacgacg ccggaataga ggtcgaattt 1200
 tctgatccga acgaattgcg cggccagttg tccgacgccg cattcgcaga cctcgaggat 1260
 tcgtttcgag ccttgatcgc ggcctag 1287

<210> 44

<211> 428

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 44

Met	Ser	Ile	Thr	Val	Tyr	Arg	Lys	Pro	Ser	Gly	Gly	Phe	Gly	Ala	Ile	
1				5					10					15		
Val	Pro	Gln	Ala	Lys	Ile	Glu	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Pro	
		20						25					30			
Lys	Gly	Leu	Val	Tyr	Val	Gly	Ala	Val	Glu	Val	Leu	Gly	Glu	Arg	Gly	
		35					40						45			
Leu	Leu	Glu	Gly	Ile	Ala	Asn	Val	Gly	Gly	Ala	Ser	Ala	Gly	Ala	Met	
		50				55					60					
Thr	Ala	Leu	Ala	Val	Gly	Leu	Gly	Leu	Ser	Pro	Arg	Glu	Ile	Arg	Ala	
65				70					75						80	
Val	Val	Phe	Asn	Gln	Asn	Ile	Ala	Asp	Leu	Thr	Asp	Ile	Glu	Lys	Thr	
			85						90					95		
Val	Glu	Pro	Ser	Ser	Gly	Ile	Thr	Gly	Met	Phe	Lys	Ser	Val	Phe	Lys	
			100					105					110			
Lys	Gly	Trp	Gln	Ala	Val	Arg	Asn	Val	Thr	Gly	Thr	Ser	Asp	Glu	Arg	
		115					120						125			
Gly	Arg	Gly	Leu	Tyr	Arg	Gly	Glu	Lys	Leu	Arg	Ala	Trp	Ile	Arg	Asp	
		130				135					140					
Leu	Ile	Ala	Gln	Arg	Val	Glu	Ala	Gly	Arg	Ser	Glu	Val	Leu	Ser	Arg	
145				150					155						160	
Ala	Asp	Ala	Asp	Gly	Arg	Asn	Phe	Tyr	Glu	Lys	Ala	Ala	Ala	Lys	Lys	
			165						170					175		
Gly	Ala	Leu	Thr	Phe	Ala	Glu	Leu	Asp	Arg	Val	Ala	Gln	Met	Ala	Pro	
			180					185					190			
Gly	Leu	Arg	Leu	Arg	Arg	Leu	Ala	Phe	Thr	Gly	Thr	Asn	Phe	Thr	Ser	
		195				200						205				
Lys	Lys	Leu	Glu	Val	Phe	Ser	Leu	His	Glu	Thr	Pro	Asp	Met	Pro	Ile	
		210				215						220				
Asp	Val	Ala	Val	Arg	Ile	Ser	Ala	Ser	Leu	Pro	Trp	Phe	Phe	Lys	Ser	
225				230						235					240	
Val	Lys	Trp	Asn	Gly	Ser	Glu	Tyr	Ile	Asp	Gly	Gly	Cys	Leu	Ser	Asn	
			245						250					255		
Phe	Pro	Met	Pro	Ile	Phe	Asp	Val	Asp	Pro	Tyr	Arg	Gly	Asp	Ala	Ser	
			260					265					270			
Ser	Lys	Ile	Arg	Leu	Gly	Ile	Phe	Gly	Gln	Asn	Leu	Ala	Thr	Leu	Gly	
		275				280						285				
Phe	Lys	Val	Asp	Ser	Glu	Glu	Glu	Ile	Arg	Asp	Ile	Leu	Trp	Arg	Ser	
		290				295					300					
Pro	Glu	Ser	Thr	Ser	Asp	Gly	Phe	Phe	Gln	Gly	Ile	Leu	Ser	Ser	Val	
305				310						315					320	
Lys	Ala	Ser	Ala	Glu	His	Trp	Val	Val	Gly	Ile	Asp	Val	Glu	Gly	Ala	
			325						330					335		
Thr	Arg	Ala	Ser	Asn	Val	Ala	Val	His	Gly	Lys	Tyr	Ala	Gln	Arg	Thr	
			340					345					350			

```

Ile Gln Ile Pro Asp Leu Gly Tyr Ser Thr Phe Lys Phe Asp Leu Ser
      355                      360                      365
Asp Ala Asp Lys Glu Arg Met Ala Glu Ala Gly Ala Lys Ala Thr Arg
      370                      375                      380
Glu Trp Leu Ala Leu Tyr Phe Asp Asp Ala Gly Ile Glu Val Glu Phe
      385                      390                      395                      400
Ser Asp Pro Asn Glu Leu Arg Gly Gln Leu Ser Asp Ala Ala Phe Ala
      405                      410                      415
Asp Leu Glu Asp Ser Phe Arg Ala Leu Ile Ala Ala
      420                      425

```

<210> 45

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 45

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atgacaaccc aatttagaaa cttgatattt gaaggcggcg gtgtaaaagg tgttgcttac      60
attggcgcca tgcagattct cgaaaatcgt ggcgtgttgc aagatattca ccgagtcgga      120
gggtgcagtg cgggtgcgat taatgcgctg atttttgcgc tgggttacac gggtcgtgag      180
caaaaagaga tcttacaagc caccgatatt aaccagttta tggataactc ttgggggtgt      240
attcgtgata ttgcgaggct tgctcgagac tttggctgga ataagggtga tttctttagt      300
agctggatag gtgatttgat tcatcgctcg ttggggaatc gccgagcgac gttcaaagat      360
ctgcaaaatg ccaagcttcc tgatctttat gtcatcggtta ctaatctgtc tacagggttt      420
gcagagggtt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc      480
tccatgtcga taccgctgtt ctttgcagcc gtgcgtcacg gtgatcgaca agatgtgtat      540
gtcgtatggg gtgttcaact taactatccg attaaactgt ttgatcggga gcgttacatt      600
gatctggcca aagatcccgg tgctgttcgg cgaacgggtt attacaacaa agaaaacgct      660
cgctttcagc ttgagcggcc cggtcatagc ccctatgttt acaatcgcca gacctgggt      720
ttgcgtcttg atagtcgcga gcagataggg ctctttcgtt atgacgaacc cctcaagggc      780
aaaccatta agtccttcac tgactacgct cgacaacttt tcggtgcgtt gatgaatgca      840
caggaaaaga ttcattctaca tggcgtatgat tggcaacgca cggctctatat cgatacattg      900
gatgtgggta cgacggactt caatctttct gatgcaacta agcaagcact gattgagcaa      960
ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgttaga gaagcccgtg     1020
aatagagtgg agtcatag                                     1038

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<210> 46

<211> 345

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 46

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Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
  1           5           10           15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
  20           25           30
Leu Gln Asp Ile His Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
  35           40           45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
  50           55           60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val

```


65					70					75					80
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	Asn	Lys	Gly
				85					90					95	
Asp	Phe	Phe	Ser	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Asn	Ala	Lys	Leu	Pro	Asp
			115				120					125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Phe	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150					155					160
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Asp	Arg
				165					170					175	
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
			180				185						190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Ala	Lys	Asp	Pro	Gly	Ala
		195					200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Glu	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235					240
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Gln	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
				245					250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
			260				265						270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Lys	Ile	His	Leu	His	Gly
		275				280						285			
Asp	Asp	Trp	Gln	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290					295					300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315					320
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Glu	Trp	Phe	Asp	Asn	Pro	Leu
			325						330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
			340					345							

<210> 47
 <211> 1476
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 47																
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gaacttccgt	tgagattaaa	ggccgaagca	ataagcagga	acctgaacat	cgaagtaa	aat										120
gaaatthttcc	tgggccgtta	tatcagcttt	aatgataaca	ttacattaga	tgacgtttcg											180
cgggctthttta	atacggccat	tagcgaacag	ttagacaata	cagacagggt	tatatgtatt											240
acacattcta	ccggagggcc	ggttattcgc	gaatgggttaa	ataaatacta	ttataatgaa											300
cgtccaccac	taagtcattt	aataatgctt	gcaccggcca	atthttgggtc	ggcattggct											360
cgttttaggga	aaagtaaatt	aagccgtatt	aaaagtgggt	ttgaagggtg	agaaccaggg											420
cagaaaattt	tagatggct	ggagtgtgga	agcaaccaat	cgtgggttact	aaataaagac											480
tggtatcgaca	atggcaattt	tcagattggc	gctgataagt	atthttccgtt	tggtatcatt											540
ggccagtcga	ttgatcgtaa	actttacgat	catcttaact	catataccgg	cgagcttggg											600
tccgatggtg	tagttcgcac	ctcaggagct	aatcttaatt	cgcggtatat	taagcttgtt											660
caggacagaa	atacaatagc	taatggaaat	atthttcagta	cattacgaat	tgccgaatat											720

```

agagaagctt gtgcaacgcc catacgggta gttagaggta aatcgcatte gggcgatgaa 780
atgggtatca tgaaaagtgt taaaaaagaa attactgatg ccggaagcaa ggaaacaata 840
aatgccatat tcgagtgtat tgaagttaca aacaacgaac aatatcaatc ctttaattact 900
aaatttgata acgaaacagc acaggtacaa aaggatgagc tgattgaaac ggaaacagaa 960
ttatttttaa tgcaccgtca ttctattcac gaccgctttt cgcaattcat ttttaaagta 1020
actgactcag aagggcaacc tgttacagat tatgatttaa tttttacagc cggggccaaa 1080
aacgatgcca accacttacc ggaaggattt gccattgaca ggcaacaaaa ttcaaataat 1140
aacgaaacca ttacgtatta ttttaattac gatgtattga aaggggctcc cgcaaatgtt 1200
taccgggacg cattaccagg tatttctatg ctggggctaa ccataaaccc aaggccggac 1260
gaaggttttg taagatatat cccatgcagc attaaagcca attccgagtt gatggaaaaa 1320
gccttttaac caaattctac taccttggtc gatattgtta ttcaacgtgt agttagcaaa 1380
gaagtttttc gggttgaaaa gttaactggt agctcaatgc caacagacaa agatgggaat 1440
tttaaaaata ctgaacctgg taacgaaata atatga 1476

```

<210> 48

<211> 491

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 48

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Met Ser Thr Lys Val Val Phe Val His Gly Trp Ser Val Thr Asn Leu
1      5      10      15
Asn Thr Tyr Gly Glu Leu Pro Leu Arg Leu Lys Ala Glu Ala Ile Ser
20      25      30
Arg Asn Leu Asn Ile Glu Val Asn Glu Ile Phe Leu Gly Arg Tyr Ile
35      40      45
Ser Phe Asn Asp Asn Ile Thr Leu Asp Asp Val Ser Arg Ala Phe Asn
50      55      60
Thr Ala Ile Ser Glu Gln Leu Asp Asn Thr Asp Arg Phe Ile Cys Ile
65      70      75      80
Thr His Ser Thr Gly Pro Val Ile Arg Glu Trp Leu Asn Lys Tyr
85      90      95
Tyr Tyr Asn Glu Arg Pro Pro Leu Ser His Leu Ile Met Leu Ala Pro
100      105      110
Ala Asn Phe Gly Ser Ala Leu Ala Arg Leu Gly Lys Ser Lys Leu Ser
115      120      125
Arg Ile Lys Ser Trp Phe Glu Gly Val Glu Pro Gly Gln Lys Ile Leu
130      135      140
Asp Trp Leu Glu Cys Gly Ser Asn Gln Ser Trp Leu Leu Asn Lys Asp
145      150      155      160
Trp Ile Asp Asn Gly Asn Phe Gln Ile Gly Ala Asp Lys Tyr Phe Pro
165      170      175
Phe Val Ile Ile Gly Gln Ser Ile Asp Arg Lys Leu Tyr Asp His Leu
180      185      190
Asn Ser Tyr Thr Gly Glu Leu Gly Ser Asp Gly Val Val Arg Thr Ser
195      200      205
Gly Ala Asn Leu Asn Ser Arg Tyr Ile Lys Leu Val Gln Asp Arg Asn
210      215      220
Thr Ile Ala Asn Gly Asn Ile Ser Ser Thr Leu Arg Ile Ala Glu Tyr
225      230      235      240
Arg Glu Ala Cys Ala Thr Pro Ile Arg Val Val Arg Gly Lys Ser His
245      250      255
Ser Gly Asp Glu Met Gly Ile Met Lys Ser Val Lys Lys Glu Ile Thr
260      265      270

```

Asp Ala Gly Ser Lys Glu Thr Ile Asn Ala Ile Phe Glu Cys Ile Glu
 275 280 285
 Val Thr Asn Asn Glu Gln Tyr Gln Ser Leu Ile Thr Lys Phe Asp Asn
 290 295 300
 Glu Thr Ala Gln Val Gln Lys Asp Glu Leu Ile Glu Thr Glu Thr Glu
 305 310 315
 Leu Phe Leu Met His Arg His Phe Ile His Asp Arg Phe Ser Gln Phe
 325 330 335
 Ile Phe Lys Val Thr Asp Ser Glu Gly Gln Pro Val Thr Asp Tyr Asp
 340 345 350
 Leu Ile Phe Thr Ala Gly Pro Gln Asn Asp Ala Asn His Leu Pro Glu
 355 360 365
 Gly Phe Ala Ile Asp Arg Gln Gln Asn Ser Asn Asn Asn Glu Thr Ile
 370 375 380
 Thr Tyr Tyr Phe Asn Tyr Asp Val Leu Lys Gly Ala Pro Ala Asn Val
 385 390 395
 Tyr Arg Asp Ala Leu Pro Gly Ile Ser Met Leu Gly Leu Thr Ile Asn
 405 410 415
 Pro Arg Pro Asp Glu Gly Phe Val Arg Tyr Ile Pro Cys Ser Ile Lys
 420 425 430
 Ala Asn Ser Glu Leu Met Glu Lys Ala Phe Lys Pro Asn Ser Thr Thr
 435 440 445
 Leu Val Asp Ile Val Ile Gln Arg Val Val Ser Lys Glu Val Phe Arg
 450 455 460
 Leu Glu Lys Leu Thr Gly Ser Ser Met Pro Thr Asp Lys Asp Gly Asn
 465 470 475 480
 Phe Lys Asn Thr Glu Pro Gly Asn Glu Ile Ile
 485 490

<210> 49

<211> 1257

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 49

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gcacagcccg	atacggattt	tcaatcggct	gagccttatg	tctcttctgc	gccaatgggg	120
cgacaaactt	atacttacgt	gcgttggttg	tatcgcacca	gccacagtac	ggatgatcca	180
gcgacagatt	ggcagtgggc	gagaaactcc	gatggtagct	atcttacttt	gcaaggatac	240
tgggtggagct	cggtaagact	aaaaaatatg	ttttactactc	aaacctcgca	aaatgttatt	300
cgtcagcgct	gcgaacacac	tttaagcatt	aatcatgata	atgcggatat	tactttttat	360
gcggcggata	atcgttttctc	attaaaccat	acgatttggt	cgaatgatcc	tgtcatgcag	420
gctaatacaaa	tcaacaagat	tgtcgcgftt	ggtgacagct	tgtccgatac	cggtaatat	480
tttaatgccg	cgcagtgggc	ttttccta	cccaatagtt	gggttttggg	gcatttttct	540
aacggtttgg	tatggactga	gtacttagct	aaacagaaaa	acttaccgat	atataactgg	600
gcggttggtg	gcgctgctgg	ggcgaatcaa	tatgtggcgt	taaccgggtg	tacaggccaa	660
gtgaactcct	atttacagta	catgggtaaa	gcgcaaaact	atcgtccaca	gaataccttg	720
tacacttttg	tcttcggttt	gaatgatttt	atgaattata	accgtgaggt	tgctgaggtg	780
gcggctgatt	ttgaaacggc	attacagcgt	ttaacgcaag	ctggcgcgca	aaatatttta	840
atgatgacgc	taccggatgt	gactaaagca	ccacagttta	cctactcaac	tcaagcggaa	900
atcgacttga	ttcaaggtaa	aatcaatgcg	ttgaacatca	agttaaaaca	gttgactgcg	960
caatatatatt	tacaaggcta	tgccattcat	ctatttgata	cttatgagtt	atttgattca	1020
atggctcgctg	aaccggaaaa	gcatggcttt	gctaatagcca	gtgaaccttg	tttgaatctc	1080
accocgttctt	cagcggcgga	ttatttgtac	cgctcatccca	ttaccaatac	ttgtgctcgt	1140

tatgggtgcag acaaatttgt attttgggat gtcacccatc caaccacggc aactcatcgc 1200
 tatatttcac aaacgctggt agcgccgggt aatggattac aatattttaa tttttaa 1257

<210> 50
 <211> 418
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(23)

<400> 50
 Met Asn Phe Trp Ser Phe Leu Leu Ser Ile Thr Leu Pro Met Gly Val
 1 5 10 15
 Gly Val Ala His Ala Gln Pro Asp Thr Asp Phe Gln Ser Ala Glu Pro
 20 25 30
 Tyr Val Ser Ser Ala Pro Met Gly Arg Gln Thr Tyr Thr Tyr Val Arg
 35 40 45
 Cys Trp Tyr Arg Thr Ser His Ser Thr Asp Asp Pro Ala Thr Asp Trp
 50 55 60
 Gln Trp Ala Arg Asn Ser Asp Gly Ser Tyr Phe Thr Leu Gln Gly Tyr
 65 70 75 80
 Trp Trp Ser Ser Val Arg Leu Lys Asn Met Phe Tyr Thr Gln Thr Ser
 85 90 95
 Gln Asn Val Ile Arg Gln Arg Cys Glu His Thr Leu Ser Ile Asn His
 100 105 110
 Asp Asn Ala Asp Ile Thr Phe Tyr Ala Ala Asp Asn Arg Phe Ser Leu
 115 120 125
 Asn His Thr Ile Trp Ser Asn Asp Pro Val Met Gln Ala Asn Gln Ile
 130 135 140
 Asn Lys Ile Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Ile
 145 150 155 160
 Phe Asn Ala Ala Gln Trp Arg Phe Pro Asn Pro Asn Ser Trp Phe Leu
 165 170 175
 Gly His Phe Ser Asn Gly Leu Val Trp Thr Glu Tyr Leu Ala Lys Gln
 180 185 190
 Lys Asn Leu Pro Ile Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Ala
 195 200 205
 Asn Gln Tyr Val Ala Leu Thr Gly Val Thr Gly Gln Val Asn Ser Tyr
 210 215 220
 Leu Gln Tyr Met Gly Lys Ala Gln Asn Tyr Arg Pro Gln Asn Thr Leu
 225 230 235 240
 Tyr Thr Leu Val Phe Gly Leu Asn Asp Phe Met Asn Tyr Asn Arg Glu
 245 250 255
 Val Ala Glu Val Ala Ala Asp Phe Glu Thr Ala Leu Gln Arg Leu Thr
 260 265 270
 Gln Ala Gly Ala Gln Asn Ile Leu Met Met Thr Leu Pro Asp Val Thr
 275 280 285
 Lys Ala Pro Gln Phe Thr Tyr Ser Thr Gln Ala Glu Ile Asp Leu Ile
 290 295 300
 Gln Gly Lys Ile Asn Ala Leu Asn Ile Lys Leu Lys Gln Leu Thr Ala
 305 310 315 320
 Gln Tyr Ile Leu Gln Gly Tyr Ala Ile His Leu Phe Asp Thr Tyr Glu
 325 330 335

```

Leu Phe Asp Ser Met Val Ala Glu Pro Glu Lys His Gly Phe Ala Asn
      340      345      350
Ala Ser Glu Pro Cys Leu Asn Leu Thr Arg Ser Ser Ala Ala Asp Tyr
      355      360      365
Leu Tyr Arg His Pro Ile Thr Asn Thr Cys Ala Arg Tyr Gly Ala Asp
      370      375      380
Lys Phe Val Phe Trp Asp Val Thr His Pro Thr Thr Ala Thr His Arg
      385      390      395      400
Tyr Ile Ser Gln Thr Leu Leu Ala Pro Gly Asn Gly Leu Gln Tyr Phe
      405      410      415
Asn Phe

```

<210> 51

<211> 1482

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 51

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gtcgaatgcc acgtcaaaact cgatggcctc gcctacaagg tcttcgccac caccgatgac      120
ccgctcacgg gggtccaggc caccgcgtac cagcgccagg acaccggcga agtcgtcatc      180
gcctatcgtg gtacggaatt cgaccgcgag cccgttcgcg acggcgccgt cgatgccggc      240
atggtgctgc tgggggtgaa tgcccagtcg cctgcctccg agctatttac ccgcgaagtg      300
atcgagaagg cgacgcacga agccgaactc aatgaccgag agccccggat caccgtgact      360
ggccactccc tggcgccgac cctcgccgaa atcaacgcgg ccaagtacgg cctgcacggc      420
gaaaccttca acgcatacgg tgcggccagc ctcaagggca tcccgggaagg cggcaatacc      480
gtgatcgacc acgtgcgcgc tggcgacctc gtcagcgccg ccagcccgcga ttacgggcag      540
gtgcgcgtct acgcggccca gcaggatat gacaccttgc agcatgccgg ctaccgcgac      600
gacagcgcca tccttagcct gcgcaaccgc atcaaggcca cggatttcga cgcgcacgcc      660
atcgacaact tcgtgccgaa cagcaaactg cttggccagt cgatcatcgc gccggaaaac      720
gaagcccgtt acgaagccca caaggccatg gtcgaccgct accgcgatga cgtggctgac      780
atccgcgatg tcgtctccgc tcccctgaac atcccgcgca ccatcgccga tatcaaggat      840
gccgtggaac gcgaggcatt tgagctggct ggcaagggca tcctcgccgt tgaacacggc      900
atcgaagagg tcgtgcacga ggcaaaggaa ggcttcgagc acctcaagga aggctttgag      960
cacctgaagg aagaagtcag cgagggcttc catgccttcg aggaaaaggc ctccagcgcg      1020
tggcatacgc tgacccatcc caaggaatgg ttcgagcacg acaagccgca ggtcgccctg      1080
aaccacccac agcaccggga caacgaactg ttcaagaagg tgctcgaagg cgtgcaccag      1140
gttgatgcga agcagggtcg ttcacccgac cagctcagtg agaacctggc cgcatcgctt      1200
accgttgccg cagcgaagga aggcctggag aaggtcaacc acgtgctgct cgacgacccc      1260
ggcattcgca cctacgccgt gcagggtag ctcaactcgc cgttgaagca ggtctccagt      1320
gtcgataacg cccaggcggt cgccacaccg gtggcccaga gcagcgcgca atggcagcag      1380
gctgcccagg cgcggcaggc acagcacaat gaggcgcttg cgcagcagca ggcgcaacag      1440
cagcagaaca accggcccaa ccatgggggt gccggcccgt ga      1482

```

<210> 52

<211> 493

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 52

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Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
 1           5           10           15
His Asp Ser Gln Val Asp Ala Asp Val Lys Leu Asp Gly Ile Ala Tyr
           20           25           30
Lys Val Phe Ala Thr Thr Asp Asp Pro Leu Thr Gly Phe Gln Ala Thr
           35           40           45
Ala Tyr Gln Arg Gln Asp Thr Gly Glu Val Val Ile Ala Tyr Arg Gly
           50           55           60
Thr Glu Phe Asp Arg Glu Pro Val Arg Asp Gly Gly Val Asp Ala Gly
65           70           75           80
Met Val Leu Leu Gly Val Asn Ala Gln Ser Pro Ala Ser Glu Leu Phe
           85           90           95
Thr Arg Glu Val Ile Glu Lys Ala Thr His Glu Ala Glu Leu Asn Asp
           100           105           110
Arg Glu Pro Arg Ile Thr Val Thr Gly His Ser Leu Gly Gly Thr Leu
           115           120           125
Ala Glu Ile Asn Ala Ala Lys Tyr Gly Leu His Gly Glu Thr Phe Asn
           130           135           140
Ala Tyr Gly Ala Ala Ser Leu Lys Gly Ile Pro Glu Gly Gly Asn Thr
145           150           155           160
Val Ile Asp His Val Arg Ala Gly Asp Leu Val Ser Ala Ala Ser Pro
           165           170           175
His Tyr Gly Gln Val Arg Val Tyr Ala Ala Gln Gln Asp Ile Asp Thr
           180           185           190
Leu Gln His Ala Gly Tyr Arg Asp Asp Ser Gly Ile Leu Ser Leu Arg
           195           200           205
Asn Pro Ile Lys Ala Thr Asp Phe Asp Ala His Ala Ile Asp Asn Phe
           210           215           220
Val Pro Asn Ser Lys Leu Leu Gly Gln Ser Ile Ile Ala Pro Glu Asn
225           230           235           240
Glu Ala Arg Tyr Glu Ala His Lys Gly Met Val Asp Arg Tyr Arg Asp
           245           250           255
Asp Val Ala Asp Ile Arg Met Leu Val Ser Ala Pro Leu Asn Ile Pro
           260           265           270
Arg Thr Ile Gly Asp Ile Lys Asp Ala Val Glu Arg Glu Ala Phe Glu
           275           280           285
Leu Ala Gly Lys Gly Ile Leu Ala Val Glu His Gly Ile Glu Glu Val
           290           295           300
Val His Glu Ala Lys Glu Gly Phe Glu His Leu Lys Glu Gly Phe Glu
305           310           315           320
His Leu Lys Glu Glu Val Ser Glu Gly Phe His Ala Phe Glu Glu Lys
           325           330           335
Ala Ser Ser Ala Trp His Thr Leu Thr His Pro Lys Glu Trp Phe Glu
           340           345           350
His Asp Lys Pro Gln Val Ala Leu Asn His Pro Gln His Pro Asp Asn
           355           360           365
Glu Leu Phe Lys Lys Val Leu Glu Gly Val His Gln Val Asp Ala Lys
           370           375           380
Gln Gly Arg Ser Pro Asp Gln Leu Ser Glu Asn Leu Ala Ala Ser Leu
385           390           395           400
Thr Val Ala Ala Arg Lys Glu Gly Leu Asp Lys Val Asn His Val Leu
           405           410           415
Leu Asp Asp Pro Gly Ile Arg Thr Tyr Ala Val Gln Gly Glu Leu Asn
           420           425           430
Ser Pro Leu Lys Gln Val Ser Ser Val Asp Asn Ala Gln Ala Val Ala
           435           440           445
Thr Pro Val Ala Gln Ser Ser Ala Gln Trp Gln Gln Ala Ala Glu Ala

```

450 455 460
 Arg Gln Ala Gln His Asn Glu Ala Leu Ala Gln Gln Gln Ala Gln Gln
 465 470 475 480
 Gln Gln Asn Asn Arg Pro Asn His Gly Val Ala Gly Pro
 485 490

<210> 53

<211> 1491

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 53

atgcgtcagg	ttacattagt	atttgttcat	ggctacagcg	ttacaaacat	cgacacttat	60
ggtgaaatgc	cactcaggct	ccgcaacgaa	ggagccacac	gtgatataga	aataaaaatt	120
gagaacattt	tcctggggcg	ctacatcagc	tttaatgatg	atgtgagatt	aaatgatggt	180
tccagagcat	tggaaacagc	cgtacaacaa	cagattgcac	cgggaaataa	aaacaattcc	240
cgttacgtat	tcatacacca	ctctaccggc	ggaccggtag	tgagaaactg	gtgggatctg	300
tactataaaa	acagcacgaa	acaatgccct	atgagccacc	tcattatgct	ggctcctgcc	360
aattttggct	cggcactggc	acaactggga	aaaagcaaac	taagccgcat	taaatcctgg	420
ttcgatggtg	tggaaaccgg	acagaatgta	ttgaattggc	tggaaactggg	aagcgcggaa	480
gcatggaagc	taaacaccga	ctggattaag	agtgatggaa	gtcagatctc	ggcacagggt	540
atttttcett	ttgtgatcat	aggtcaggac	attgaccgca	aattatacga	tcatttaaac	600
tcctacaccg	gtgagctggg	ttccgacggc	gtggtgcggt	cggccgcagc	caatttaaatt	660
gctacttatg	taaaactcac	acaacctaaa	cccaccttgg	taaatggaaa	actggtaaca	720
ggtaatctgg	aaataggaga	agtaaaacaa	gcgctttata	cacccatgcg	catcgtctca	780
aaaaaatcgc	attccaacaa	ggatatggga	attatgagaa	gtgtactgaa	atcaacaaat	840
gatgccaaca	gcgcccgaac	ggtaaacgcc	atttttgact	gcattaatgt	gaaaacctta	900
accgattacc	agagcattgc	cacacagttt	gattcgcaaa	caaaagacgt	gcaggaaaat	960
tcaattattg	aaagggaata	aacgcccttt	ggaactaaaa	actatattca	cgaccgtttc	1020
tcccagggtca	ttttcagagt	aacagacagt	gaaggttacc	cggttaccag	ttttgatctg	1080
atcctcaccg	gcggcgaaaa	aaatgatccc	aacgccttgc	ctcagggtct	ttttgtggac	1140
agacaatgca	acagtgtcaa	taaatcgacc	attacttatt	ttttaaatta	cgatattatg	1200
aacggcacac	cagctatagc	aggtataaga	ccggcatcca	aaggcatgga	aaaactgggt	1260
ctgatcatta	acccaaggcc	tgaagaaggc	tttgtgcggt	acattccctg	caaaataaac	1320
acatcgcccc	atttgtttga	cgccgctctg	aaacccaacg	ccacaacgct	tattgatatt	1380
gtattgcaac	gcgtggtaag	taccgaagta	ttccgctttg	aaggaacaga	cggggtaacg	1440
ccgcctaaaa	aagattttctc	gaaagtgaag	cccggaacgg	atattatttg	a	1491

<210> 54

<211> 496

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 54

Met	Arg	Gln	Val	Thr	Leu	Val	Phe	Val	His	Gly	Tyr	Ser	Val	Thr	Asn
1				5				10						15	
Ile	Asp	Thr	Tyr	Gly	Glu	Met	Pro	Leu	Arg	Leu	Arg	Asn	Glu	Gly	Ala
			20					25					30		
Thr	Arg	Asp	Ile	Glu	Ile	Lys	Ile	Glu	Asn	Ile	Phe	Leu	Gly	Arg	Tyr
		35					40				45				
Ile	Ser	Phe	Asn	Asp	Asp	Val	Arg	Leu	Asn	Asp	Val	Ser	Arg	Ala	Leu

<210> 55

<211> 1041
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 55
 atggcttcac aattcagaaa tctggttttt gaaggaggcg gtgtgaaggg catcgcctat 60
 atcggcgcca tgcagggtgct ggagcagcgg ggactgctca aggatattgt ccgggtggga 120
 ggtaccagtg caggcgccat caacgcgctg atcttttcgc tgggctttac catcaaagag 180
 cagcaggata ttctcaactc caccaacttc agggagttta tggacagctc gttcgggttc 240
 atccgaaact tccggagggt atggagcgaa ttcggttgga accgcggcga tgtattttcg 300
 gactgggccc gggagctggg gaaagagaag ctcggcaaaa agaacgccac gttcggcgat 360
 ctgaaaaagg cgaaacgtcc cgatctgtac gtgatcggca ccaatctctc tacgggggtt 420
 tccgagacct tttcgcacga acgccacgcc gacatgcctc tggtagatgc ggtgaggata 480
 agcatgtcga tcccgctctt ttttgctgca cggaggctgg gaaaacgtaa ggatgtgtat 540
 gtggatggcg ggggtgatgct caactatccc gtgaagctgt tcgacaggga gaagtatatc 600
 gatttggaga aagagaatga ggcggccgc tatgtggagt actacaatca agagaatgcc 660
 cggtttctgc tcgagcggcc cggccgaagc ccttatgtgt ataaccggca gactctcggg 720
 ctgcggctcg acacgcagga agagatcggc ctgttccgtt acgatgagcc gctgaagggc 780
 aagcagatca accgtttccc cgaatacggc agagccctga tcggctcgtc gatgcaggta 840
 caggagaaca tccacctgaa aagtgacgac tggcagcgaa cgctctacat caacacgctg 900
 gatgtgggca ccaccgattt cgacattacc gacgagaaga aaaaagtgtt ggtgaatgag 960
 gggatcaagg gagcggagac ctatttcgcg tggtttgagg atcccgaaaga aaaaccgggtg 1020
 aataaggtga atcttgtctg a 1041

<210> 56
 <211> 346
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 56
 Met Ala Ser Gln Phe Arg Asn Leu Val Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Ile Ala Tyr Ile Gly Ala Met Gln Val Leu Glu Gln Arg Gly Leu
 20 25 30
 Leu Lys Asp Ile Val Arg Val Gly Thr Ser Ala Gly Ala Ile Asn
 35 40 45
 Ala Leu Ile Phe Ser Leu Gly Phe Thr Ile Lys Glu Gln Gln Asp Ile
 50 55 60
 Leu Asn Ser Thr Asn Phe Arg Glu Phe Met Asp Ser Ser Phe Gly Phe
 65 70 75 80
 Ile Arg Asn Phe Arg Arg Leu Trp Ser Glu Phe Gly Trp Asn Arg Gly
 85 90 95
 Asp Val Phe Ser Asp Trp Ala Gly Glu Leu Val Lys Glu Lys Leu Gly
 100 105 110
 Lys Lys Asn Ala Thr Phe Gly Asp Leu Lys Lys Ala Lys Arg Pro Asp
 115 120 125
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ser Glu Thr Phe
 130 135 140
 Ser His Glu Arg His Ala Asp Met Pro Leu Val Asp Ala Val Arg Ile
 145 150 155 160
 Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Arg Arg Leu Gly Lys Arg

<210>	57
<211>	1413
<212>	DNA
<213>	Unknown

<220>
<223> Obtained from an environmental sample.

<400>	57						
atgcaatttag	tgttcgtaca	cgggtggagt	gttaccata	ccaataccta	tgggtgaatta		60
cccgaaggtt	tggcggcagg	cgccgcgaca	cacggcctgc	agatcgatat	caggcacggtt		120
tttctcggca	agtacatcag	ctttcacgat	gaggtgactc	tggatgatat	agcacgtgcc		180
ttcgacaagg	cgctgagaga	catgtcgggt	gatggtgaca	cggctcggcc	tttctcctgt		240
atcacgcatt	cgaccggcgg	ccctgtcggt	cggcactgga	ttaacaaatt	ctacggcgcg		300
cgagggctat	cgaaaactgcc	gctggagcat	ttggttatgc	tggcgccctgc	caaccacggc		360
tccagcctgg	cgggtactcgg	caagcaacgt	cttggtcgca	tcaagtcctg	gttcgatggc		420
gtggagcccg	gacaaaaagt	gctcgactgg	ctatcgctgg	gcagcaatgg	gcaatggggc		480
ctcaacaggg	atttttttgag	ctaccgccc	gccaaacatg	gcttcttccc	ttttgttctg		540
acggggccagg	gtatagacac	aaaattctac	gattttttga	acagctacct	tgtggagccc		600
ggcagtgacg	gtgtgggttcg	cgtggcgggt	gccaatatgc	atttttcgcta	cctctccctg		660
gtacaatctg	agaccgtatt	acacacccc	ggcaaggtgc	tacagctgga	atataacgag		720
cggcgccccc	tgaagtcgcc	acaagcggta	ccgatggcg	tcttctocca	atttagccac		780
tctggcgaca	agatggggat	tatggcagtc	aagcgcaaga	aagacgcgca	tcaaatgatc		840
gtaacggaag	gtctggaagt	tctctgcgta	tcggacagcg	atgaatatca	gcaaagaggc		900
cttgaacttg	cagaactgac	cgccagcgaa	cagcgcaagc	ccatcgaaga	ccaggacaag		960
attatcagcc	gctatagcat	gctgggtattt	agagtgcgcg	accaggcggg	caatacgatc		1020
ggagtgcacg	atttcgatat	cctcttactg	gccggagata	cctatagccc	cgacaaaactg		1080
ccagaggggt	tcttcatgga	taaacaggcc	aatagagatg	ccggctcact	gatcttactat		1140
gtggatgccg	acaaaatgtc	cgagatgaaa	gatggctgct	acggactcgc	ggtgtctctg		1200
cggccggaga	aagggttttc	ctattacaca	acaggtgagt	tcaggtcaga	gggtatcccc		1260
gtggaccgtg	tattttcagc	aaacgaaacc	acctatattg	atatcaccat	gaaccgaagt		1320
gtcgatcaaa	atgtattccg	gttttcgcct	gcaacagagc	cacctgaaag	cttcaaaaga		1380
accacgccct	caggtagccga	tatcccttca	tag				1413

<210> 58
 <211> 470
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 58
 Met Gln Leu Val Phe Val His Gly Trp Ser Val Thr His Thr Asn Thr
 1 5 10 15
 Tyr Gly Glu Leu Pro Glu Ser Leu Ala Ala Gly Ala Ala Thr His Gly
 20 25 30
 Leu Gln Ile Asp Ile Arg His Val Phe Leu Gly Lys Tyr Ile Ser Phe
 35 40 45
 His Asp Glu Val Thr Leu Asp Asp Ile Ala Arg Ala Phe Asp Lys Ala
 50 55 60
 Leu Arg Asp Met Ser Gly Asp Gly Asp Thr Val Ser Pro Phe Ser Cys
 65 70 75 80
 Ile Thr His Ser Thr Gly Gly Pro Val Val Arg His Trp Ile Asn Lys
 85 90 95
 Phe Tyr Gly Ala Arg Gly Leu Ser Lys Leu Pro Leu Glu His Leu Val
 100 105 110
 Met Leu Ala Pro Ala Asn His Gly Ser Ser Leu Ala Val Leu Gly Lys
 115 120 125
 Gln Arg Leu Gly Arg Ile Lys Ser Trp Phe Asp Gly Val Glu Pro Gly
 130 135 140
 Gln Lys Val Leu Asp Trp Leu Ser Leu Gly Ser Asn Gly Gln Trp Ala
 145 150 155 160
 Leu Asn Arg Asp Phe Leu Ser Tyr Arg Pro Ala Lys His Gly Phe Phe
 165 170 175
 Pro Phe Val Leu Thr Gly Gln Gly Ile Asp Thr Lys Phe Tyr Asp Phe
 180 185 190
 Leu Asn Ser Tyr Leu Val Glu Pro Gly Ser Asp Gly Val Val Arg Val
 195 200 205
 Ala Gly Ala Asn Met His Phe Arg Tyr Leu Ser Leu Val Gln Ser Glu
 210 215 220
 Thr Val Leu His Thr Pro Gly Lys Val Leu Gln Leu Glu Tyr Asn Glu
 225 230 235 240
 Arg Arg Pro Val Lys Ser Pro Gln Ala Val Pro Met Gly Val Phe Ser
 245 250 255
 Gln Phe Ser His Ser Gly Asp Lys Met Gly Ile Met Ala Val Lys Arg
 260 265 270
 Lys Lys Asp Ala His Gln Met Ile Val Thr Glu Val Leu Lys Cys Leu
 275 280 285
 Cys Val Ser Asp Ser Asp Glu Tyr Gln Gln Arg Gly Leu Glu Leu Ala
 290 295 300
 Glu Leu Thr Ala Ser Glu Gln Arg Lys Pro Ile Glu Asp Gln Asp Lys
 305 310 315 320
 Ile Ile Ser Arg Tyr Ser Met Leu Val Phe Arg Val Arg Asp Gln Ala
 325 330 335
 Gly Asn Thr Ile Gly Val His Asp Phe Asp Ile Leu Leu Leu Ala Gly
 340 345 350
 Asp Thr Tyr Ser Pro Asp Lys Leu Pro Glu Gly Phe Phe Met Asp Lys
 355 360 365
 Gln Ala Asn Arg Asp Ala Gly Ser Leu Ile Tyr Tyr Val Asp Ala Asp

```

      370              375              380
Lys Met Ser Glu Met Lys Asp Gly Cys Tyr Gly Leu Arg Val Val Val
385              390              395              400
Arg Pro Glu Lys Gly Phe Ser Tyr Tyr Thr Thr Gly Glu Phe Arg Ser
      405              410              415
Glu Gly Ile Pro-Val Asp Arg Val Phe Ala Ala Asn Glu Thr Thr Tyr
      420              425              430
Ile Asp Ile Thr Met Asn Arg Ser Val Asp Gln Asn Val Phe Arg Phe
      435              440              445
Ser Pro Ala Thr Glu Pro Pro Glu Ser Phe Lys Arg Thr Thr Pro Ser
      450              455              460
Gly Thr Asp Ile Pro Ser
465              470

```

<210> 59

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 59

```

atgacaacac aatttagaaa cttgatcttt gaaggcggcg gtgtaaaagg cgttgcttac      60
attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga      120
gggtgcagtg cgggtgcatg taacgcgctg atttttgcgc tgggttacac ggtccgtgag      180
caaaaagaga tcttacaagc caccgatttt aaccagttta tggataactc ttgggggggtt      240
attcgtgata ttcgcaggct tgctcgagac tttggctgga ataaggggtga tttctttagt      300
agctggatag gtgatttgat tcatcgctcg tttggggaatc gccgagcgac gttcaaagat      360
ctgcaaaagg ccaagcttcc tgatctttat gtcacggtta ctaatctgtc tacagggttt      420
gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc      480
tccatgtcga taccgctgtt ctttgccgca gtgcgtcatg gtgatcgaca agatgtgtat      540
gtcgaatggg gtgttcaact taactatccg attaaactgt ttgatcggga gcgttatatt      600
gatctggcca aagatcccggtg gcccggtcgg cgaacggggt attacaacaa agaaaaacgct      660
cgctttcagc ttgatcggcc gggccatagc ccctatgttt acaatcgcca gaccttgggt      720
ttgcgactgg atagtcgcga ggagataggg ctctttcgtt atgacgaacc cctcaagggc      780
aaaccattta agtccttcac tgactacgct cgacaacttt tccggtgcgct gatgaatgca      840
caggaaaaga ttcattctaca tggcgatgat tggcaacgca cgggtctatat cgatacactc      900
gatgtgggta cgacggactt caatctttct gatgcaacca agcaagcact gattgagcaa      960
ggaattaacg gcaccgaaaa ttatttcgac tggtttgata atccggttaga gaagcctgtg     1020
aatagagtgg agtcatag

```

<210> 60

<211> 345

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 60

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Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
1              5              10              15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
      20              25              30
Leu Gln Asp Ile Arg Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
      35              40              45

```

Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
 50 55 60
 Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
 65 70 75 80
 Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly
 -85 90 95
 Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
 100 105 110
 Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
 115 120 125
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
 130 135 140
 Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
 145 150 155 160
 Ser Met Ser ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
 165 170 175
 Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
 180 185 190
 Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
 195 200 205
 Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
 210 215 220
 Asp Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
 225 230 235 240
 Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
 245 250 255
 Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
 260 265 270
 Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly
 275 280 285
 Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr
 290 295 300
 Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
 305 310 315 320
 Gly Ile Asn Gly Thr Glu Asn Tyr Phe Asp Trp Phe Asp Asn Pro Leu
 325 330 335
 Glu Lys Pro Val Asn Arg Val Glu Ser
 340 345

<210> 61

<211> 1257

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 61

atgacattaa	aactotccct	gctgacgcg	agcctgagcg	ccgtgtctcc	agcagtcttg	60
gcaaacgacg	tcaatccagc	gccactcatg	gcgccgtccg	aagcggattc	cgcgagacg	120
ctgggcagtc	tgacgtacac	ctatgttcgc	tgctgggtatc	gtccggctgc	gacgcataat	180
gataccttaca	ccacctggga	gtgggcgaag	aacgcggacg	gcagtgatth	caccattgat	240
ggctattgggt	ggatcatcggt	gagttacaaa	aacatgtttct	ataccgatac	tcagcccgat	300
accatcatgc	agcgtctgtgc	agagacgttg	gggttaaccc	acgataccgc	tgacatcacc	360
tatgccgcgg	ccgatacccg	tttctcttac	aaccacacca	tctggagcaa	cgatgtcgcc	420
aacgcgccga	gcaaaatcaa	taaggtgatc	gcctttgggtg	acagcctgtc	agacacgggc	480
aacatttttta	acgcctcgca	atggcgcttc	ccgaaccgga	actcctggtt	tgctcgccac	540

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ttctcaaacg ggtttgtctg gaccgagtat ctggcgcaag gtttggggct gcccctctac    600
aactggggcg tgggcggcgc ggcggggcgc aatcaatact gggcgctgac tggcgtgaat    660
gaacagggtca gttcgtacct gacctacatg gagatggcgc cgaattaccg tgcggagaac    720
acgctgttta cactcgaatt cgggtctgaat gattttatga actacgaccg ttcactggca    780
gacgtcaaag cagattacag ctccggcgctg attcgtctgg tgggaagccgg agcgaaaaat    840
atggtgctgt tgacctacc ggatgccacg cgcgcgcgcg agttccaata ttcaacgcaa    900
gaacacatcg acgaggtgcg cgccaaagtg attggcatga acgcgttcat tcgtgagcag    960
gcacgctact tccagatgca gggcatcaac atttcgctgt ttgacgccta cacgctgttt   1020
gatcagatga tcgccgaccc agccgcgcac ggctttgata atgccagcgc gccatgtctt   1080
gatattcagc gcagctctgc ggcggactat ctctacacgc atgctctggc agccgagtgt   1140
gcctcatccg gttcagaccg ctttgtgttc tgggatgtga ctcacccaac cacggcaacg   1200
catcgctaca tcgccgacca cattctggct accggtgttg cgcagttccc gcgttaa    1257

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<210> 62

<211> 418

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(21)

<400> 62

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Met Thr Leu Lys Leu Ser Leu Leu Ile Ala Ser Leu Ser Ala Val Ser
 1          5          10          15
Pro Ala Val Leu Ala Asn Asp Val Asn Pro Ala Pro Leu Met Ala Pro
          20          25          30
Ser Glu Ala Asp Ser Ala Gln Thr Leu Gly Ser Leu Thr Tyr Thr Tyr
          35          40          45
Val Arg Cys Trp Tyr Arg Pro Ala Ala Thr His Asn Asp Pro Tyr Thr
          50          55          60
Thr Trp Glu Trp Ala Lys Asn Ala Asp Gly Ser Asp Phe Thr Ile Asp
65          70          75          80
Gly Tyr Trp Trp Ser Ser Val Ser Tyr Lys Asn Met Phe Tyr Thr Asp
          85          90          95
Thr Gln Pro Asp Thr Ile Met Gln Arg Cys Ala Glu Thr Leu Gly Leu
          100          105          110
Thr His Asp Thr Ala Asp Ile Thr Tyr Ala Ala Ala Asp Thr Arg Phe
          115          120          125
Ser Tyr Asn His Thr Ile Trp Ser Asn Asp Val Ala Asn Ala Pro Ser
130          135          140
Lys Ile Asn Lys Val Ile Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly
145          150          155          160
Asn Ile Phe Asn Ala Ser Gln Trp Arg Phe Pro Asn Pro Asn Ser Trp
          165          170          175
Phe Val Gly His Phe Ser Asn Gly Phe Val Trp Thr Glu Tyr Leu Ala
          180          185          190
Gln Gly Leu Gly Leu Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala
195          200          205
Gly Arg Asn Gln Tyr Trp Ala Leu Thr Gly Val Asn Glu Gln Val Ser
210          215          220
Ser Tyr Leu Thr Tyr Met Glu Met Ala Pro Asn Tyr Arg Ala Glu Asn
225          230          235          240
Thr Leu Phe Thr Leu Glu Phe Gly Leu Asn Asp Phe Met Asn Tyr Asp
          245          250          255

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Arg Ser Leu Ala Asp Val Lys Ala Asp Tyr Ser Ser Ala Leu Ile Arg
      260      265      270
Leu Val Glu Ala Gly Ala Lys Asn Met Val Leu Leu Thr Leu Pro Asp
      275      280      285
Ala Thr Arg Ala Pro Gln Phe Gln Tyr Ser Thr Gln Glu His Ile Asp
      290      295      300
Glu Val Arg Ala Lys Val Ile Gly Met Asn Ala Phe Ile Arg Glu Gln
      305      310      315
Ala Arg Tyr Phe Gln Met Gln Gly Ile Asn Ile Ser Leu Phe Asp Ala
      325      330      335
Tyr Thr Leu Phe Asp Gln Met Ile Ala Asp Pro Ala Ala His Gly Phe
      340      345      350
Asp Asn Ala Ser Ala Pro Cys Leu Asp Ile Gln Arg Ser Ser Ala Ala
      355      360      365
Asp Tyr Leu Tyr Thr His Ala Leu Ala Ala Glu Cys Ala Ser Ser Gly
      370      375      380
Ser Asp Arg Phe Val Phe Trp Asp Val Thr His Pro Thr Thr Ala Thr
      385      390      395
His Arg Tyr Ile Ala Asp His Ile Leu Ala Thr Gly Val Ala Gln Phe
      405      410      415
Pro Arg

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<210> 63

<211> 1242

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 63

```

atgaaaaata cgtaaatttt ggctggctgt atattggcag ctccagccgt cgcagatgac      60
ctaacaatca cccctgaaac tataagtgtg cgctacgcgt ctgagggtgca gaacaaacaa      120
acatacactt atgttcgctg ctggtatcgt ccagcgcaga accatgacga cccttccact      180
gagtgggaat gggctcgtga cgacaatggc gattacttca ctatcgatgg gtactgggtg      240
tcgtctgtct ccttcaaaaa catgttctat accaataccc cgcaaacaga aattgaaaac      300
cgctgtaaag aaacactagg ggtaaatcat gatagtgccg atcttcttta ctatgcatca      360
gacaatcggt tctcctacaa ccatagtatt tggacaaacg acaacgcagt aaacaacaaa      420
atcaatcgta ttgtcgcatt cggatgtagc ctgtctgaca ccgtaatatc gtacaatgga      480
tccaatggg tattcccaa ccgtaattct tggtttctcg gtcacttttc aaacggtttg      540
gtgtggactg aatacttagc gcaaaacaaa aacgtaccac tgtacaactg ggcggtcggt      600
ggcgccgccg gcaccaacca atacgtcgca ttgacaggca tttatgacca agtgacgtct      660
tatcttacgt acatgaagat ggcaaagaac tacaacccaa acaacagttt gatgacgtg      720
gaatttgcc taaatgattt catgaattac ggccgagaag tggcggacgt gaaagctgac      780
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ttaccggacg caacaaaggc accgcagttt aaatattcga ctcaggagga aattgagacc      900
gttcgagcta agattcttga gttcaacact tttattgaag aacaagcggt actctatcaa      960
gctaaaggac tgaatgtggc cctctacgat gctcatagca tctttgatca gctgacatcc     1020
aatcctaaac aacacggttt tgagaactca acagatgcct gtctgaacat caaccgcagt     1080
tcctctgtcg actaccttta cagtcattgag ctaactaacg attgtgcgta tcatagctct     1140
gataaatatg tgttctgggg agtcactcac ccaaccacag caacacataa atacattgcc     1200
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<210> 64

<211> 413

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL -

<222> (1)...(18)

<400> 64

```

Met Lys Asn Thr Leu Ile Leu Ala Gly Cys Ile Leu Ala Ala Pro Ala
 1          5          10          15
Val Ala Asp Asp Leu Thr Ile Thr Pro Glu Thr Ile Ser Val Arg Tyr
          20          25          30
Ala Ser Glu Val Gln Asn Lys Gln Thr Tyr Thr Tyr Val Arg Cys Trp
          35          40          45
Tyr Arg Pro Ala Gln Asn His Asp Asp Pro Ser Thr Glu Trp Glu Trp
          50          55          60
Ala Arg Asp Asp Asn Gly Asp Tyr Phe Thr Ile Asp Gly Tyr Trp Trp
65          70          75          80
Ser Ser Val Ser Phe Lys Asn Met Phe Tyr Thr Asn Thr Pro Gln Thr
          85          90          95
Glu Ile Glu Asn Arg Cys Lys Glu Thr Leu Gly Val Asn His Asp Ser
          100          105          110
Ala Asp Leu Leu Tyr Tyr Ala Ser Asp Asn Arg Phe Ser Tyr Asn His
          115          120          125
Ser Ile Trp Thr Asn Asp Asn Ala Val Asn Asn Lys Ile Asn Arg Ile
          130          135          140
Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Tyr Asn Gly
145          150          155          160
Ser Gln Trp Val Phe Pro Asn Arg Asn Ser Trp Phe Leu Gly His Phe
          165          170          175
Ser Asn Gly Leu Val Trp Thr Glu Tyr Leu Ala Gln Asn Lys Asn Val
          180          185          190
Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn Gln Tyr
          195          200          205
Val Ala Leu Thr Gly Ile Tyr Asp Gln Val Thr Ser Tyr Leu Thr Tyr
          210          215          220
Met Lys Met Ala Lys Asn Tyr Asn Pro Asn Asn Ser Leu Met Thr Leu
225          230          235          240
Glu Phe Gly Leu Asn Asp Phe Met Asn Tyr Gly Arg Glu Val Ala Asp
          245          250          255
Val Lys Ala Asp Leu Ser Ser Ala Leu Ile Arg Leu Thr Glu Ser Gly
          260          265          270
Ala Ser Asn Ile Leu Leu Phe Thr Leu Pro Asp Ala Thr Lys Ala Pro
          275          280          285
Gln Phe Lys Tyr Ser Thr Gln Glu Glu Ile Glu Thr Val Arg Ala Lys
          290          295          300
Ile Leu Glu Phe Asn Thr Phe Ile Glu Glu Gln Ala Leu Leu Tyr Gln
305          310          315          320
Ala Lys Gly Leu Asn Val Ala Leu Tyr Asp Ala His Ser Ile Phe Asp
          325          330          335
Gln Leu Thr Ser Asn Pro Lys Gln His Gly Phe Glu Asn Ser Thr Asp
          340          345          350
Ala Cys Leu Asn Ile Asn Arg Ser Ser Ser Val Asp Tyr Leu Tyr Ser
          355          360          365
His Glu Leu Thr Asn Asp Cys Ala Tyr His Ser Ser Asp Lys Tyr Val
          370          375          380

```


Phe Trp Gly Val Thr His Pro Thr Thr Ala Thr His Lys Tyr Ile Ala
 385 390 395 400
 Asp Gln Ile Ile Gln Thr Lys Leu Asp Gln Phe Asn Phe
 405 410

<210> 65 -
 <211> 1164
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 65
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 gatggcggag gtattttggg tttgatgagc gttgaaatcc tagcaaaaat tgaagcggat 120
 ttacgcacta agttaggtaa agaccagaac ttcgtgctcg cggattattt cgattttgtc 180
 tgcggcacca gcaccggcgc gattatcgct gcctgtattt ctagtggcat gtcgatggct 240
 aaaatacgcc aattctatct cgacagtggg aagcaaagt tgcataaggc ctccttgctt 300
 aagcgcttgc aatacagtta tgacgatgag ccattggcga ggcagttgcg tgcagccttt 360
 gatgagcaac tgaaggaaac cgatgccaaag ctgggtagtg cgcacctaaa aacgctgttg 420
 atgatggtga tgcgtaacca cagcaccgac tcaccttggc cggttttcaa taacccttac 480
 gcaaaatata ataatatcgc ccgaaaggat tgcaacctca acctgccttt atggcaattg 540
 gtccgtgccg gcaccgccgc tccgacgtat ttcccaccgg aagtcacac tttcgcagat 600
 ggcacaccgc aagaatacaa cttcatcttc gtcgacggtg gcgtgaccac ctacaacaac 660
 ccagcatatc ttgctttcct aatggccact gccaaagcct atgccctcaa ctggccgaca 720
 ggcagcaacc agttattgat cgtttccgta ggcaccggaa gtgccgccaa tgtccgacct 780
 aatctggacg tggatgatat gaacctgatc cattttgccg aaaacatccc ttcagccctg 840
 atgaatgccg catctgccgg ttgggatatg acctgccggg tattgggtga atgccgccat 900
 ggtggcatgt tagatcgggg gtttggtgac atggtgatgc ccgctcaag agatcttaat 960
 tttaccggcc ctaagctttt tacttatatg cgttatgatc ccgatgtttc ctttgagggc 1020
 ttgaagacta tcggtatatc agatatcgat ccagccaaaa tgcagcaaat ggattccgtc 1080
 aataatattc cagatatata acgggtagggt atcgaatatg ccaaacgcca tgttgataca 1140
 gctcattttg aggggtttta ataa 1164

<210> 66
 <211> 387
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 66
 Met Asn Pro Phe Leu Glu Asp Lys Ile Lys Ser Ser Gly Pro Lys Lys
 1 5 10 15
 Ile Leu Ala Cys Asp Gly Gly Gly Ile Leu Gly Leu Met Ser Val Glu
 20 25 30
 Ile Leu Ala Lys Ile Glu Ala Asp Leu Arg Thr Lys Leu Gly Lys Asp
 35 40 45
 Gln Asn Phe Val Leu Ala Asp Tyr Phe Asp Phe Val Cys Gly Thr Ser
 50 55 60
 Thr Gly Ala Ile Ile Ala Ala Cys Ile Ser Ser Gly Met Ser Met Ala
 65 70 75 80
 Lys Ile Arg Gln Phe Tyr Leu Asp Ser Gly Lys Gln Met Phe Asp Lys
 85 90 95
 Ala Ser Leu Leu Lys Arg Leu Gln Tyr Ser Tyr Asp Asp Glu Pro Leu

<400> 67							
atgggtcattg	tcttcgtcca	cggatggagc	gtgcgcaaca	ccaacacgta	cgggcagctg		60
cccttgcgtc	tcaagaagag	cttcaaagcc	gccgggaaac	agattcaggt	cgagaacatc		120
tacctgggcg	agtacgtgag	ctttgacgac	caggtaacag	tgcacgacat	cgcccgcgca		180
ttcgattgcg	cactgcggga	aaaactatac	gatccggcga	cgaagcagtg	gacgaagttc		240
gcctgcatca	ctcattccac	cggcggcccc	gtcgcgcgct	tgtggattgga	tctctactac		300
ggcgccgcca	gactggccga	gtgcccgatg	tcccacctcg	tgatgctcgc	cccggccaat		360
catggctcgg	cccttgcccc	gctcggcaag	agccgcctca	gccgcatcaa	gagctttctc		420
gaggggtgtcg	aacccggcca	gcgcgtcctc	gactggctcg	aactcggcag	tgagctgagt		480
tgggcctctca	acacgagatg	gctcgactac	gactgccgcg	ccgccgcctg	ctgggtcttc		540
accctcaccg	gccagcgcac	cgaccggagt	ttgtacgacc	atctcaacag	ctataccggt		600

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gagcaggggat cggatggcgt cgtgcgcgtc gccgcggcca acatgaacac caagctgctg      660
acctttgaac agaaggggcg caagctcgtg ttcacaggcc agaagaagac cgccgacacc      720
ggccttggcg tcgtgccggg ccggtcgcac tccggccgcg acatgggcat catcgccagc      780
gtgcgcggca ccggcgacca tcccaccctg gaatgggtga ctcgttgccct ggccgtcacc      840
gacgtcaaca cgtacgatgc cgtctgtaag gatctggacg ctctcaccgc ccagacccag      900
aaggatgaaa aggtggaaga ggtcaaaggc ctgctgcgga cggtcagata ccagacggac      960
cgctacgtca tgctcgtctt ccgcctgaag aacgaccgcg gcgactacct ctccgattac     1020
gatctcctgc tcaccgcccg acccaactac tcgcccgcag acctgcccga aggcttcttc     1080
gtcgaccgcc aacggaacca gcggaacccg ggcaagctca cttactacct gaactacgac     1140
gccatggcca aattgaaagg taagaccgcc gagggccgtc tgggcttcaa gatcctggcg     1200
cgcccgggtg aaggcggcct cgtctactat gaggttgccg agttccagtc cgacgtgggc     1260
ggcgtcagca gcatgctgca gcccaacgca acagtgatga tcgacatcac cctcaatcgc     1320
aacgtcgacg cgcgcgtctt ccggttcacc gagaatctgc ccacgggtga ccagggcgag     1380
gaaatcagcg gcgtcccgtc ggggcagaac gtcccgtag     1419

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<210> 68

<211> 472

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 68

```

Met Val Ile Val Phe Val His Gly Trp Ser Val Arg Asn Thr Asn Thr
1          5          10          15
Tyr Gly Gln Leu Pro Leu Arg Leu Lys Lys Ser Phe Lys Ala Ala Gly
          20          25          30
Lys Gln Ile Gln Val Glu Asn Ile Tyr Leu Gly Glu Tyr Val Ser Phe
          35          40          45
Asp Asp Gln Val Thr Val Asp Asp Ile Ala Arg Ala Phe Asp Cys Ala
          50          55          60
Leu Arg Glu Lys Leu Tyr Asp Pro Ala Thr Lys Gln Trp Thr Lys Phe
          65          70          75          80
Ala Cys Ile Thr His Ser Thr Gly Gly Pro Val Ala Arg Leu Trp Met
          85          90          95
Asp Leu Tyr Tyr Gly Ala Ala Arg Leu Ala Glu Cys Pro Met Ser His
          100          105          110
Leu Val Met Leu Ala Pro Ala Asn His Gly Ser Ala Leu Ala Gln Leu
          115          120          125
Gly Lys Ser Arg Leu Ser Arg Ile Lys Ser Phe Phe Glu Gly Val Glu
          130          135          140
Pro Gly Gln Arg Val Leu Asp Trp Leu Glu Leu Gly Ser Glu Leu Ser
          145          150          155          160
Trp Ala Leu Asn Thr Arg Trp Leu Asp Tyr Asp Cys Arg Ala Ala Ala
          165          170          175
Cys Trp Val Phe Thr Leu Thr Gly Gln Arg Ile Asp Arg Ser Leu Tyr
          180          185          190
Asp His Leu Asn Ser Tyr Thr Gly Glu Gln Gly Ser Asp Gly Val Val
          195          200          205
Arg Val Ala Ala Ala Asn Met Asn Thr Lys Leu Leu Thr Phe Glu Gln
          210          215          220
Lys Gly Arg Lys Leu Val Phe Thr Gly Gln Lys Lys Thr Ala Asp Thr
          225          230          235          240
Gly Leu Gly Val Val Pro Gly Arg Ser His Ser Gly Arg Asp Met Gly
          245          250          255
Ile Ile Ala Ser Val Arg Gly Thr Gly Asp His Pro Thr Leu Glu Trp

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<210>	69
<211>	1038
<212>	DNA
<213>	Unknown

<220>
<223> Obtained from an environmental sample.

$\langle 210 \rangle$ 70

<211> 345
 <212> PRT
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 70

Met	Thr	Thr	Gln	Phe	Arg	Asn	Leu	Ile	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Val	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Ile	Leu	Glu	Asn	Arg	Gly	Val
		20						25					30		
Leu	Gln	Asp	Ile	Arg	Arg	Val	Gly	Gly	Cys	Ser	Ala	Gly	Ala	Ile	Asn
		35					40					45			
Ala	Leu	Ile	Phe	Ala	Leu	Gly	Tyr	Thr	Val	Arg	Glu	Gln	Lys	Glu	Ile
	50					55					60				
Leu	Gln	Ala	Thr	Asp	Phe	Asn	Gln	Phe	Met	Asp	Asn	Ser	Trp	Gly	Val
65					70					75					80
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	His	Lys	Gly
				85					90					95	
Asp	Phe	Phe	Asn	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Lys	Ala	Lys	Leu	Pro	Asp
		115					120					125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Tyr	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150					155					160
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Asp	Arg
				165					170					175	
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
		180						185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Ala	Lys	Asp	Pro	Gly	Ala
		195					200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
		210				215					220				
Glu	Arg	Pro	Gly	Tyr	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235					240
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Glu	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
			245						250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
		260						265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Lys	Ile	His	Leu	His	Gly
		275				280						285			
Asp	Asp	Trp	Gln	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290					295					300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315					320
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Glu	Trp	Phe	Asp	Asn	Pro	Leu
			325						330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
			340					345							

<210> 71
 <211> 3264
 <212> DNA
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 71

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acccggctcc	tccagatcgt	cgtgccgctc	gcacggcccc	ccgcggcggc	cgtaacagcag	180
cccgcgatga	cgtggaacct	gcattggggcc	aagaagaccg	cggaactggt	tcccgatctg	240
atgcgtaacc	ataacgtcac	cgctcgggcc	ctccaggaag	tggccaacgg	caacttcctg	300
ggcctcactc	ccacagagca	cgacgtgccc	tacctcaagc	cggacggcac	gacctcgact	360
ccgcggatc	cgcagaaatg	gcgggtcgag	aagtacaacc	tcgccaagga	cgatgcaacc	420
gctttcgtga	tccggaccgg	ctccaacaac	cgcgggctcg	cgatcgctac	caccaggac	480
gtcggcgatg	tctcgagaaa	tgtacacgtc	gtcaatgtga	ccgaggattg	ggaaggcaag	540
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accacgccga	agcgcgcgaa	caacaacgcc	ggcactctgg	tcgaggacct	ctccaagctg	660
cacgagacgg	ccgctttcga	aggcgactgg	gccgcgatgg	gcgactggaa	ccggtacccc	720
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aaggggagccg	gtaacgacta	caaggccagc	cgatcgacgt	cgaagcacgg	ctccgatcac	960
tacccggtgt	tcttcggtat	tggggacgat	tcggacacct	gcattggcgg	cacggcgccg	1020
gtggcgccga	acgcgcgcgg	tgccggccgc	accgagtcct	gtcccctgga	cgacgatctg	1080
ccggccgtca	tcgtctcgat	gggggacagc	tatatctccg	gcgaggaggg	gcgctggcag	1140
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gagatcaagc	gcgccgacat	cgccgacatc	ccggcggaac	gcaggatcaa	catcgctcgc	1320
tcggggcgccg	agaccaagca	cctgctcacc	gagaccttca	agggtgaaaa	gccccagatc	1380
gagcagctcg	ccgacgtcgc	cgaaacccac	cggttgagca	cgatcgctgg	ctccatcggc	1440
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gaacacgagg	ccgagtggtg	gcgcttcgta	ccaggtctca	ccacgcccgg	tgacacggcc	1980
gaagccatcc	atccgaatgc	gttcggccag	cacgccttca	gtagctgcct	cagccaggcc	2040
gtccggacga	tggacgattc	ggaccagagg	tacttcgagt	gcgacgggcg	ggacaccgga	2100
aatccccgcc	tcgtgtggcc	acgcagttcg	cccatcgacg	ccgtcggtga	gaccgcggac	2160
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tcgaagagca	cgatcatgac	gagcatcggt	gagatcacga	cgatgtggcc	gagcctgcgc	2880
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ccgtactgcg	aggtgtacga	caccgacggc	cgcgaaatggc	tgggcgggaa	cgggcacgac	3120

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<210> 72

<211> 1088

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 72

Met	Ser	Leu	Ser	Ser	Pro	Pro	Glu	Thr	Pro	Glu	Pro	Pro	Glu	Pro	Pro
1				5					10				15		
Ser	Pro	Gly	Ala	Arg	Ser	Leu	Arg	Gly	Gly	Trp	Ser	Arg	Arg	Val	Ala
			20					25					30		
Gly	Leu	Leu	Ala	Leu	Val	Leu	Leu	Thr	Gly	Leu	Leu	Gln	Ile	Val	Val
		35					40					45			
Pro	Leu	Ala	Arg	Pro	Ala	Ala	Ala	Ala	Val	Gln	Gln	Pro	Ala	Met	Thr
	50				55					60					
Trp	Asn	Leu	His	Gly	Ala	Lys	Lys	Thr	Ala	Glu	Leu	Val	Pro	Asp	Leu
65				70					75						80
Met	Arg	Asn	His	Asn	Val	Thr	Val	Ala	Ala	Leu	Gln	Glu	Val	Ala	Asn
			85					90					95		
Gly	Asn	Phe	Leu	Gly	Leu	Thr	Pro	Thr	Glu	His	Asp	Val	Pro	Tyr	Leu
		100						105					110		
Lys	Pro	Asp	Gly	Thr	Thr	Ser	Thr	Pro	Pro	Asp	Pro	Gln	Lys	Trp	Arg
		115					120					125			
Val	Glu	Lys	Tyr	Asn	Leu	Ala	Lys	Asp	Asp	Ala	Thr	Ala	Phe	Val	Ile
	130				135					140					
Arg	Thr	Gly	Ser	Asn	Asn	Arg	Gly	Leu	Ala	Ile	Val	Thr	Thr	Gln	Asp
145				150					155						160
Val	Gly	Asp	Val	Ser	Gln	Asn	Val	His	Val	Val	Asn	Val	Thr	Glu	Asp
			165					170						175	
Trp	Glu	Gly	Lys	Met	Phe	Pro	Ala	Leu	Gly	Val	Lys	Ile	Asp	Gly	Ala
	180						185						190		
Trp	Tyr	Tyr	Ser	Ile	His	Ala	Ser	Thr	Thr	Pro	Lys	Arg	Ala	Asn	Asn
	195						200					205			
Asn	Ala	Gly	Thr	Leu	Val	Glu	Asp	Leu	Ser	Lys	Leu	His	Glu	Thr	Ala
	210					215					220				
Ala	Phe	Glu	Gly	Asp	Trp	Ala	Ala	Met	Gly	Asp	Trp	Asn	Arg	Tyr	Pro
225				230					235						240
Ser	Glu	Asp	Ser	Asn	Ala	Tyr	Glu	Asn	Gln	Arg	Lys	His	Leu	Lys	Gly
			245					250						255	
Ala	Met	Arg	Thr	Asn	Phe	Pro	Asp	Asn	Gln	Ala	Ala	Leu	Arg	Glu	Val
			260					265					270		
Leu	Glu	Phe	Glu	Ser	Asp	Glu	Arg	Val	Ile	Trp	Gln	Gly	Ala	Arg	Thr
	275					280						285			
His	Asp	His	Gly	Ala	Glu	Leu	Asp	Tyr	Met	Val	Ala	Lys	Gly	Ala	Gly
	290					295					300				
Asn	Asp	Tyr	Lys	Ala	Ser	Arg	Ser	Thr	Ser	Lys	His	Gly	Ser	Asp	His
305				310						315					320
Tyr	Pro	Val	Phe	Phe	Gly	Ile	Gly	Asp	Asp	Ser	Asp	Thr	Cys	Met	Gly
			325					330					335		
Gly	Thr	Ala	Pro	Val	Ala	Ala	Asn	Ala	Pro	Arg	Ala	Ala	Ala	Thr	Glu
			340					345					350		

Ser Cys Pro Leu Asp Asp Asp Leu Pro Ala Val Ile Val Ser Met Gly
 355 360 365
 Asp Ser Tyr Ile Ser Gly Glu Gly Gly Arg Trp Gln Gly Asn Ala Asn
 370 375 380
 Thr Ser Ser Gly Gly Asp Ser Trp Gly Thr Asp Arg Ala Ala Asp Gly
 385 390 395 400
 Thr Glu Val Tyr Glu Lys Asn Ser Glu Gly Ser Asp Ala Cys His Arg
 405 410 415
 Ser Asp Val Ala Glu Ile Lys Arg Ala Asp Ile Ala Asp Ile Pro Ala
 420 425 430
 Glu Arg Arg Ile Asn Ile Ala Cys Ser Gly Ala Glu Thr Lys His Leu
 435 440 445
 Leu Thr Glu Thr Phe Lys Gly Glu Lys Pro Gln Ile Glu Gln Leu Ala
 450 455 460
 Asp Val Ala Glu Thr His Arg Val Asp Thr Ile Val Val Ser Ile Gly
 465 470 475 480
 Gly Asn Asp Leu Glu Phe Ala Asp Ile Val Ser Gln Cys Ala Thr Ala
 485 490 495
 Phe Met Leu Gly Glu Gly Ala Cys His Thr Asp Val Asp Asp Thr Leu
 500 505 510
 Asp Ser Arg Leu Gly Asp Val Ser Arg Ser Val Ser Glu Val Leu Ala
 515 520 525
 Ala Ile Arg Asp Thr Met Ile Glu Ala Gly Gln Asp Thr Ser Tyr
 530 535 540
 Lys Leu Val Leu Gln Ser Tyr Pro Ala Pro Leu Pro Ala Ser Asp Glu
 545 550 555 560
 Met Arg Tyr Thr Gly Asp His Tyr Asp Arg Tyr Thr Glu Gly Gly Cys
 565 570 575
 Pro Phe Tyr Asp Val Asp Leu Asp Trp Thr Arg Asp Val Leu Ile Lys
 580 585 590
 Lys Ile Glu Ala Thr Leu Arg Gly Val Ala Lys Ser Ala Asp Ala Ala
 595 600 605
 Phe Leu Asn Leu Thr Asp Thr Phe Thr Gly His Glu Leu Cys Ser Lys
 610 615 620
 His Thr Arg Gln Ala Glu Ser Gly Glu Ser Leu Ala Asn Pro Ile Leu
 625 630 635 640
 Glu His Glu Ala Glu Trp Val Arg Phe Val Pro Gly Leu Thr Thr Pro
 645 650 655
 Gly Asp Thr Ala Glu Ala Ile His Pro Asn Ala Phe Gly Gln His Ala
 660 665 670
 Leu Ser Ser Cys Leu Ser Gln Ala Val Arg Thr Met Asp Asp Ser Asp
 675 680 685
 Gln Arg Tyr Phe Glu Cys Asp Gly Arg Asp Thr Gly Asn Pro Arg Leu
 690 695 700
 Val Trp Pro Arg Ser Ser Pro Ile Asp Ala Val Val Glu Thr Ala Asp
 705 710 715 720
 Gly Trp Gln Gly Asp Asp Phe Arg Leu Ala Asp His Tyr Met Phe Gln
 725 730 735
 Arg Gly Val Tyr Ala Arg Phe Asn Pro Asp Ala Asp Arg Ser Gly Ala
 740 745 750
 Ile Asp Pro Gly Arg Ile Thr Phe Gly Gln Thr Asp Gly Trp Leu Gly
 755 760 765
 Glu Val Lys Asp Thr Ser Asn Trp Pro Ser Leu Ser Gly Thr Asp Phe
 770 775 780
 Val Asp Gly Ile Asp Ala Ala Ala Glu Ala Arg Thr Ser Thr Gly His
 785 790 795 800
 Gln Leu Leu Leu Phe His Ser Gly Val Glu Asp Asn Gln Tyr Val Arg

<400>	73						
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gatagcgtga	ttagagaaaat	taattagccaa	actcaacctt	taggatatga	gattgtgacga		180
gattctattc	gtgattggtca	tattggttct	tttgcctgta	agatggcagt	ctttagaaat		240
aatggtaatg	gcaatttgtgt	tttagcgatc	aaagggacag	atatgaataa	tatcaatgac		300
ttggtgaatg	atctaaccat	gatattagga	ggcattgggt	ctggtgctgc	aatccaacca		360
acgattaaca	tggcacaaga	actcatcgac	caatatggag	tgaatttgat	tactggtcac		420
tcccttgtag	gctacatgac	tgaaatcatc	gctaccaatc	gtggactacc	aggtattgca		480
ttttgcgac	caggttcaaa	tggtccaatt	gtaaaattag	gtggacaaga	gacacctggc		540
tttcacaatg	ttaactttga	acatgatcca	gcaggttaacg	tttagactgg	ggtttatact		600
catgtccaat	ggagatttta	tgtaggatgt	gatgggatga	ctcatgggat	tgaaaatatg		660
gtgaattatt	ttaaagataa	aagagattta	accaatcgca	atattcaagg	aagaagtga		720

753

agtcataata cgggttatta ttacccaaaa taa

<210> 74

<211> 250

<212> PRT

<213> Unknown -

<220>

<223> Obtained from an environmental sample.

<400> 74

Met	Gly	Asn	Gly	Ala	Ala	Val	Gly	Ser	Asn	Asp	Asn	Gly	Arg	Glu	Glu
1				5					10					15	
Ser	Val	Tyr	Val	Leu	Ser	Val	Ile	Ala	Cys	Asn	Val	Tyr	Tyr	Leu	Gln
			20					25					30		
Lys	Cys	Glu	Gly	Gly	Ala	Ser	Arg	Asp	Ser	Val	Ile	Arg	Glu	Ile	Asn
		35					40					45			
Ser	Gln	Thr	Gln	Pro	Leu	Gly	Tyr	Glu	Ile	Val	Ala	Asp	Ser	Ile	Arg
		50				55					60				
Asp	Gly	His	Ile	Gly	Ser	Phe	Ala	Cys	Lys	Met	Ala	Val	Phe	Arg	Asn
65					70				75					80	
Asn	Gly	Asn	Gly	Asn	Cys	Val	Leu	Ala	Ile	Lys	Gly	Thr	Asp	Met	Asn
				85					90					95	
Asn	Ile	Asn	Asp	Leu	Val	Asn	Asp	Leu	Thr	Met	Ile	Leu	Gly	Gly	Ile
			100					105					110		
Gly	Ser	Val	Ala	Ala	Ile	Gln	Pro	Thr	Ile	Asn	Met	Ala	Gln	Glu	Leu
		115				120						125			
Ile	Asp	Gln	Tyr	Gly	Val	Asn	Leu	Ile	Thr	Gly	His	Ser	Leu	Gly	Gly
		130				135					140				
Tyr	Met	Thr	Glu	Ile	Ile	Ala	Thr	Asn	Arg	Gly	Leu	Pro	Gly	Ile	Ala
145					150				155					160	
Phe	Cys	Ala	Pro	Gly	Ser	Asn	Gly	Pro	Ile	Val	Lys	Leu	Gly	Gly	Gln
			165						170					175	
Glu	Thr	Pro	Gly	Phe	His	Asn	Val	Asn	Phe	Glu	His	Asp	Pro	Ala	Gly
			180					185					190		
Asn	Val	Met	Thr	Gly	Val	Tyr	Thr	His	Val	Gln	Trp	Ser	Ile	Tyr	Val
		195					200					205			
Gly	Cys	Asp	Gly	Met	Thr	His	Gly	Ile	Glu	Asn	Met	Val	Asn	Tyr	Phe
	210					215					220				
Lys	Asp	Lys	Arg	Asp	Leu	Thr	Asn	Arg	Asn	Ile	Gln	Gly	Arg	Ser	Glu
225					230					235					240
Ser	His	Asn	Thr	Gly	Tyr	Tyr	Tyr	Pro	Lys						
			245						250						

<210> 75

<211> 1335

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 75

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gcgctgcacc	ttaagttggc	agagcaggga	tatcagctgg	aagatattta	cctcgggcgg	120
tatctgtccc	ttgaaaatca	tatcgaaata	cgggatattg	caaaagcaat	gcaccgtgca	180
ttgctggaga	ggattaccga	ctggagtcag	cctttccatt	ttattactca	cagtacggga	240

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ggtatgggtcg ccaaattattg gatattgaat cattataaag gaagtattgc aaaacaaaaa 300
ccactcaaaa atgtagtgtt tctggctgca cctaattttg gttcaaggct ggcacacccat 360
ggacgtacca tgctgggaga aataatggaa ctgggagaaa cagggagaa gattccttgaa 420
tctctggagt taggaagtgc tttttcgtgg gatgtgaatg agcagttttt taatgcgtcc 480
aattggaaag ataaagaaat aaagttctat aacctgatag gagacagggt caaaacggat 540
ttttttaaat ccaaaatttt tccagctgcg tttgaaagcg ggtcagatat ggtgattcgg 600
gttgccggcag gaaatcagaa ctttgtcccg tacagggtacg atagtcagaa agatagcttt 660
actgttgtca atgagttgaa aggaattgct tttggtgctc tctaccaata tacacattcc 720
aatgatgatt atggaatcct gaacagcatc aaaaaaagtt caacccttga aaaccatcag 780
gcactcagac taattgtaga atgtctgaag gtttcgggag ataaagaata tgaaaatggt 840
gttgcacagt tggctgcagc gacaaaagaa accagagaaa aacgccaggg atatgcacag 900
ctggattttcc gttttcggga tgatgaaggc tttccaatag atgattatgt tgtagagctg 960
ggagtaatgg taaatggaaa acctaaacca tctaaaacag tagatgacgt gcataagaat 1020
aaaattacac caaaccatct tactgtattc attaacctga aagaactgga acctaactgt 1080
aagtacttta tcaatattaa atcgatatcg gaatcctcca tgtatagtta cgatcctgct 1140
gtcaggacta tagagcttgc ttctaacgag attacaaaaa ttatccgtga ggaccataca 1200
acacagattg atgtgatact ttcccggact cctgctaaaa accttttcat gtttcacgc 1260
ggagatgatg aagacctaca tgtgacatgg tcgcggtacg gagaaacaaa aagtacaaag 1320
cagggaataa aataa 1335

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<210> 76

<211> 444

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 76

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1      5      10
Gln Thr Tyr Gln Ala Leu His Leu Lys Leu Ala Glu Gln Gly Tyr Gln
20     25     30
Leu Glu Asp Ile Tyr Leu Gly Arg Tyr Leu Ser Leu Glu Asn His Ile
35     40     45
Glu Ile Arg Asp Ile Ala Lys Ala Met His Arg Ala Leu Leu Glu Arg
50     55     60
Ile Thr Asp Trp Ser Gln Pro Phe His Phe Ile Thr His Ser Thr Gly
65     70     75
Gly Met Val Ala Lys Tyr Trp Ile Leu Asn His Tyr Lys Gly Ser Ile
85     90     95
Ala Lys Gln Lys Pro Leu Lys Asn Val Val Phe Leu Ala Ala Pro Asn
100    105    110
Phe Gly Ser Arg Leu Ala His His Gly Arg Thr Met Leu Gly Glu Ile
115    120    125
Met Glu Leu Gly Glu Thr Gly Lys Lys Ile Leu Glu Ser Leu Glu Leu
130    135    140
Gly Ser Ala Phe Ser Trp Asp Val Asn Glu Gln Phe Phe Asn Ala Ser
145    150    155
Asn Trp Lys Asp Lys Glu Ile Lys Phe Tyr Asn Leu Ile Gly Asp Arg
165    170    175
Val Lys Thr Asp Phe Phe Lys Ser Lys Ile Phe Pro Ala Ala Phe Glu
180    185    190
Ser Gly Ser Asp Met Val Ile Arg Val Ala Ala Gly Asn Gln Asn Phe
195    200    205
Val Arg Tyr Arg Tyr Asp Ser Gln Lys Asp Ser Phe Thr Val Val Asn
210    215    220

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Glu Leu Lys Gly Ile Ala Phe Gly Ala Leu Tyr Gln Tyr Thr His Ser
 225 230 235 240
 Asn Asp Asp Tyr Gly Ile Leu Asn Ser Ile Lys Lys Ser Ser Thr Leu
 245 250 255
 Glu Asn His Gln Ala Leu Arg Leu Ile Val Glu Cys Leu Lys Val Ser
 260 265 270
 Gly Asp Lys Glu Tyr Glu Asn Val Ala Gln Leu Ala Ala Thr
 275 280 285
 Lys Glu Thr Arg Glu Lys Arg Gln Gly Tyr Ala Gln Leu Asp Phe Arg
 290 295 300
 Phe Arg Asp Asp Glu Gly Phe Pro Ile Asp Asp Tyr Val Val Glu Leu
 305 310 315 320
 Gly Val Met Val Asn Gly Lys Pro Lys Pro Ser Lys Thr Val Asp Asp
 325 330 335
 Val His Lys Asn Lys Ile Thr Pro Asn His Leu Thr Val Phe Ile Asn
 340 345 350
 Leu Lys Glu Leu Glu Pro Asn Leu Lys Tyr Phe Ile Asn Ile Lys Ser
 355 360 365
 Ile Ser Glu Ser Ser Met Tyr Ser Tyr Asp Pro Ala Val Arg Thr Ile
 370 375 380
 Glu Leu Ala Ser Asn Glu Ile Thr Lys Ile Ile Arg Glu Asp His Thr
 385 390 395 400
 Thr Gln Ile Asp Val Ile Leu Ser Arg Thr Pro Ala Lys Asn Leu Phe
 405 410 415
 Met Phe His Arg Gly Asp Asp Glu Asp Leu His Val Thr Trp Ser Arg
 420 425 430
 Tyr Gly Glu Thr Lys Ser Thr Lys Gln Gly Ile Lys
 435 440

<210> 77

<211> 1026

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 77

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ggtacttcgg	ctggagcgct	ggttgccgtc	ttaatcagtt	tgggctatac	cgcccaagaa	180
ttgaaggaca	tcctatggaa	aatcaatttc	caaaactttt	tggacagctc	gtggggcctg	240
gtgcgcaaca	cggcacgttt	cattgaggat	tacggttggt	acaaagggtga	gtttttccgc	300
gaattgggtg	cgggctacat	caaggaaaaa	acgggcaata	gtgaaagcac	tttcaaggat	360
ctggccaaat	caaaagattt	ccgtggcctc	agccttattg	gtagcgatct	gtccacagga	420
tactcaaagg	tgttcagcaa	cgaattcacc	ccaaacgtca	aagtagctga	tgcagcccgc	480
atctccatgt	cgatacccct	gtttttcaaa	gccgttcgcg	gtgtaaaccg	tgatggacac	540
atttacgtcg	atgggtggact	gtagacaac	tatgccatca	aggtgttcga	ccgcgtcaat	600
tacgtaaaga	ataagaacaa	cgtacgggtac	accgagtatt	atgaaaagac	caacaagtcg	660
ctgaaaagca	aaaacaagct	gaccaacgaa	tacgtctaca	ataaagaaac	tttgggcttc	720
cgattggatg	ccaaagaaca	gattgagatg	tttctcgacc	atagtataga	accaaaggca	780
aaggacattg	actcactatt	ctcttacacg	aaggcttttg	tcaccaccct	catcgacttt	840
caaaacaatg	tacatttgca	tagtgacgac	tggcaacgca	cagtctatat	cgactcttta	900
ggtatcagtt	ccactgactt	cggcatctct	gactctaaaa	aacagaaact	cgctcgattca	960
ggcattttgc	atacgcaaaa	atacctggat	tggtataaca	acgacgaaga	gaaagccaac	1020
aaatag						1026

<210> 78
 <211> 341
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 78
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 Gly Ile Ala Tyr Val Gly Ala Leu Glu Val Leu Glu Arg Glu Gly Ile
 20 25 30
 Leu Lys Asp Ile Lys Arg Val Ala Gly Thr Ser Ala Gly Ala Leu Val
 35 40 45
 Ala Val Leu Ile Ser Leu Gly Tyr Thr Ala Gln Glu Leu Lys Asp Ile
 50 55 60
 Leu Trp Lys Ile Asn Phe Gln Asn Phe Leu Asp Ser Ser Trp Gly Leu
 65 70 75 80
 Val Arg Asn Thr Ala Arg Phe Ile Glu Asp Tyr Gly Trp Tyr Lys Gly
 85 90 95
 Glu Phe Phe Arg Glu Leu Val Ala Gly Tyr Ile Lys Glu Lys Thr Gly
 100 105 110
 Asn Ser Glu Ser Thr Phe Lys Asp Leu Ala Lys Ser Lys Asp Phe Arg
 115 120 125
 Gly Leu Ser Leu Ile Gly Ser Asp Leu Ser Thr Gly Tyr Ser Lys Val
 130 135 140
 Phe Ser Asn Glu Phe Thr Pro Asn Val Lys Val Ala Asp Ala Ala Arg
 145 150 155 160
 Ile Ser Met Ser Ile Pro Leu Phe Phe Lys Ala Val Arg Gly Val Asn
 165 170 175
 Gly Asp Gly His Ile Tyr Val Asp Gly Leu Leu Asp Asn Tyr Ala
 180 185 190
 Ile Lys Val Phe Asp Arg Val Asn Tyr Val Lys Asn Lys Asn Asn Val
 195 200 205
 Arg Tyr Thr Glu Tyr Tyr Glu Lys Thr Asn Lys Ser Leu Lys Ser Lys
 210 215 220
 Asn Lys Leu Thr Asn Glu Tyr Val Tyr Asn Lys Glu Thr Leu Gly Phe
 225 230 235 240
 Arg Leu Asp Ala Lys Glu Gln Ile Glu Met Phe Leu Asp His Ser Ile
 245 250 255
 Glu Pro Lys Ala Lys Asp Ile Asp Ser Leu Phe Ser Tyr Thr Lys Ala
 260 265 270
 Leu Val Thr Thr Leu Ile Asp Phe Gln Asn Asn Val His Leu His Ser
 275 280 285
 Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Ser Leu Gly Ile Ser Ser
 290 295 300
 Thr Asp Phe Gly Ile Ser Asp Ser Lys Lys Gln Lys Leu Val Asp Ser
 305 310 315 320
 Gly Ile Leu His Thr Gln Lys Tyr Leu Asp Trp Tyr Asn Asn Asp Glu
 325 330 335
 Glu Lys Ala Asn Lys
 340

<210> 79
 <211> 1701
 <212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 79

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acccgccgct	cggcgctgga	actgctgaat	gccgacaatc	tggtcggcaa	tgaccgggcc	180
gacccacgct	tgggctggag	cgaaggctct	gccaacaatc	tcgatctctc	gaatgccag	240
aacgaagtgc	agcgcatcaa	gagcattacc	aagagccacg	ccctgtatga	gccgcgttac	300
gatgacgttt	tcgcccgcct	cgctggcgag	cgctgggttg	ataccgccgg	tttcaacgtg	360
gccaaggcca	ccgtcggcaa	gatcgattgc	ttcagcgccg	tcgcgcaaga	gcccgcggat	420
gtgcaacaag	accatttcat	gcgcggttat	gacgacgtgg	gtggacaagg	gggcgtgaac	480
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accgtgcgcc	tgccctgaaga	caattacgtc	aaagtccgtc	aggtcaaggc	gtatctctgc	720
tctgaagggtg	ccgaacagca	tacgcacaac	acgcaagatg	ccatcaactt	caccagcggc	780
gatgtcatct	ggaaacagaa	cacccgctctg	gatgcaggct	ggagcaccta	caaggccagc	840
aacatgaagc	cgggtggcatt	ggttgccctc	gaagccagca	aagatttggtg	ggccgccttt	900
attcgcacca	tggcogtttc	ccgcgaggag	cgctcgcccg	tcgccgaaca	ggaagcgcag	960
gctctcgtca	atcactgggt	gtcgttcgac	gaacaggaaa	tgctgaactg	gtacgaagaa	1020
gaagagcacc	gcgatcatat	gtacgtcaag	gaaccgggcc	agagcggccc	aggttcgtcg	1080
ttattcgatt	gcatgggttg	tctgggtgtg	gcctcgggca	gtcaggcgca	acgggtggcg	1140
gaactcgatc	agcaacgccg	ccaatgtttg	ttcaacgtca	aggccgctac	tggctatggc	1200
gatctgaatg	atccacacat	ggatattccg	tacaactggc	aatgggtgtc	gtcgacgcaa	1260
tggaaaatcc	ctgcggccga	ctggaaaatc	ccgcagctgc	ccgccgattc	agggaaatca	1320
gtcgtcatca	agaattcgat	caatggcgat	ccgctgggtg	cacctgccgg	gctcaagcac	1380
aacaccgatg	tttacggtgc	accgggtgag	gcgattgaat	tcattttcgt	cggtgatttc	1440
aaccatgagg	cgtatttccg	caccaaggac	aacgcggatc	tgttcctgag	ttacagcgcg	1500
gtatcgggca	agggcttgct	gtacaacacg	cccaaccagg	ccggttatcg	tgttcagcct	1560
tatgggtgtg	tgtggacgat	tgagaatacc	tactggaatg	atttcctctg	gtacaacagc	1620
tcgaacgacc	gcatctatgt	cagcggcacc	ggcgtgcca	acaagtcaca	ctcccagtgg	1680
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<210> 80

<211> 566

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(23)

<400> 80

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			20					25					30		
Ile	Pro	Met	Gly	His	Glu	Trp	Leu	Thr	Arg	Arg	Ser	Ala	Leu	Glu	Leu
		35					40					45			
Leu	Asn	Ala	Asp	Asn	Leu	Val	Gly	Asn	Asp	Pro	Ala	Asp	Pro	Arg	Leu
	50					55				60					
Gly	Trp	Ser	Glu	Gly	Leu	Ala	Asn	Asn	Leu	Asp	Leu	Ser	Asn	Ala	Gln

65					70					75					80
Asn	Glu	Val	Gln	Arg	Ile	Lys	Ser	Ile	Thr	Lys	Ser	His	Ala	Leu	Tyr
				85					90					95	
Glu	Pro	Arg	Tyr	Asp	Asp	Val	Phe	Ala	Ala	Ile	Val	Gly	Glu	Arg	Trp
			100					105					110		
Val	Asp	Thr	Ala	Gly	Phe	Asn	Val	Ala	Lys	Ala	Thr	Val	Gly	Lys	Ile
	115					120						125			
Asp	Cys	Phe	Ser	Ala	Val	Ala	Gln	Glu	Pro	Ala	Asp	Val	Gln	Gln	Asp
	130					135					140				
His	Phe	Met	Arg	Arg	Tyr	Asp	Asp	Val	Gly	Gly	Gln	Gly	Gly	Val	Asn
145					150					155					160
Ala	Ala	Arg	Arg	Ala	Gln	Gln	Arg	Phe	Ile	Asn	His	Phe	Val	Asn	Ala
				165				170						175	
Ala	Met	Ala	Glu	Glu	Lys	Ser	Ile	Lys	Ala	Trp	Asp	Gly	Gly	Gly	Tyr
		180						185					190		
Ser	Ser	Leu	Glu	Lys	Val	Ser	His	Asn	Tyr	Phe	Leu	Phe	Gly	Arg	Ala
	195						200					205			
Val	His	Leu	Phe	Gln	Asp	Ser	Phe	Ser	Pro	Glu	His	Thr	Val	Arg	Leu
	210					215					220				
Pro	Glu	Asp	Asn	Tyr	Val	Lys	Val	Arg	Gln	Val	Lys	Ala	Tyr	Leu	Cys
225					230					235					240
Ser	Glu	Gly	Ala	Glu	Gln	His	Thr	His	Asn	Thr	Gln	Asp	Ala	Ile	Asn
			245						250					255	
Phe	Thr	Ser	Gly	Asp	Val	Ile	Trp	Lys	Gln	Asn	Thr	Arg	Leu	Asp	Ala
			260					265					270		
Gly	Trp	Ser	Thr	Tyr	Lys	Ala	Ser	Asn	Met	Lys	Pro	Val	Ala	Leu	Val
	275						280					285			
Ala	Leu	Glu	Ala	Ser	Lys	Asp	Leu	Trp	Ala	Ala	Phe	Ile	Arg	Thr	Met
	290					295					300				
Ala	Val	Ser	Arg	Glu	Glu	Arg	Arg	Ala	Val	Ala	Glu	Gln	Glu	Ala	Gln
305					310					315					320
Ala	Leu	Val	Asn	His	Trp	Leu	Ser	Phe	Asp	Glu	Gln	Glu	Met	Leu	Asn
			325						330					335	
Trp	Tyr	Glu	Glu	Glu	Glu	His	Arg	Asp	His	Thr	Tyr	Val	Lys	Glu	Pro
		340					345						350		
Gly	Gln	Ser	Gly	Pro	Gly	Ser	Ser	Leu	Phe	Asp	Cys	Met	Val	Gly	Leu
	355					360						365			
Gly	Val	Ala	Ser	Gly	Ser	Gln	Ala	Gln	Arg	Val	Ala	Glu	Leu	Asp	Gln
	370					375					380				
Gln	Arg	Arg	Gln	Cys	Leu	Phe	Asn	Val	Lys	Ala	Ala	Thr	Gly	Tyr	Gly
385					390					395					400
Asp	Leu	Asn	Asp	Pro	His	Met	Asp	Ile	Pro	Tyr	Asn	Trp	Gln	Trp	Val
			405						410					415	
Ser	Ser	Thr	Gln	Trp	Lys	Ile	Pro	Ala	Ala	Asp	Trp	Lys	Ile	Pro	Gln
		420						425					430		
Leu	Pro	Ala	Asp	Ser	Gly	Lys	Ser	Val	Val	Ile	Lys	Asn	Ser	Ile	Asn
	435						440					445			
Gly	Asp	Pro	Leu	Val	Ala	Pro	Ala	Gly	Leu	Lys	His	Asn	Thr	Asp	Val
	450					455					460				
Tyr	Gly	Ala	Pro	Gly	Glu	Ala	Ile	Glu	Phe	Ile	Phe	Val	Gly	Asp	Phe
465					470					475					480
Asn	His	Glu	Ala	Tyr	Phe	Arg	Thr	Lys	Asp	Asn	Ala	Asp	Leu	Phe	Leu
			485						490					495	
Ser	Tyr	Ser	Ala	Val	Ser	Gly	Lys	Gly	Leu	Leu	Tyr	Asn	Thr	Pro	Asn
		500						505					510		
Gln	Ala	Gly	Tyr	Arg	Val	Gln	Pro	Tyr	Gly	Val	Leu	Trp	Thr	Ile	Glu
		515					520					525			

Asn Thr Tyr Trp Asn Asp Phe Leu Trp Tyr Asn Ser Ser Asn Asp Arg
 530 535 540
 Ile Tyr Val Ser Gly Thr Gly Ala Ala Asn Lys Ser His Ser Gln Trp
 545 550 555 560
 Ile Ile Asp Gly Leu Gln
 _565

<210> 81
 <211> 1422
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 81
 atgaaaaaga aattatgtac aatggctctt gtaacagcaa tatcttcttg tgttggttacg 60
 attccaacag aagcacaagc ttgtggaata ggcgaagtaa tgaaacagga gaaccaagag 120
 cacaaacgtg tgaaaagatg gtctgcggag catccgcatc attcaaatga aagtacacat 180
 ttatggattg cacgaaatgc gattcaaatt atgagtcgta atcaagataa gacggttcaa 240
 gaaaatgaat tacaattttt aaatactcct gaatataagg agttatttga aagagggtctt 300
 tatgatgctg attaccttga tgaatttaac gatggaggta caggtacaat cggcattgat 360
 gggctaatta gagggagggtg gaaatctcat ttttacgata ccgatacaag aaagaactat 420
 aaaggggaag aagaaccaac agctctttca caaggagata aatattttta attagcagggt 480
 gaatacttta agaagggcga ccaaaaacaa gctttttatt atttaggtgt tgcaacgcat 540
 tactttacag atgctactca accaatgcat gctgctaatt ttacagccgt cgacacgagt 600
 gcttttaaagt ttcatagcgc ttttgaaaat tatgtgacga caattcagac acagtatgaa 660
 gtatctgatg gtgagggcgt atataattta gtgaattcta atgatccaaa acagtggatc 720
 catgaaacag cgagactcgc aaaagtggaa atcggaacaa ttaccaatga cgagattaaa 780
 tctcactata ataaaggaaa caatgctctt tggcaacaag aagttatgcc agctgtccag 840
 aggagtttag agaacgcaca aagaaacacg gcgggattta ttcatttatg gtttaaaaca 900
 tttgttgcca atactgccgc tgaagaaatt gaaaatactg tagtgaaaga ttctaaagga 960
 gaagcaatac aagataataa aaaatacttc gtagtgccaa gtgagtttct aaatagagggt 1020
 ttgacctttg aagtatatgc aaggaatgac tatgcactat tatctaatta cgtagatgat 1080
 agtaaagttc atggtacgcc agttcagttt gtatttgata aagataataa cggtatcctt 1140
 catcgaggag aaagtgtact gctgaaaatg acgcaatcta actatgataa ttacgtatctt 1200
 ctaaaactact ctaacttgac aaactgggta catcttgccg aacaaaaaac aaatactgca 1260
 cagttttaaag tgtatccaaa tccgaataac ccatctgaat attacctata tacagatgga 1320
 taccagtaaa attatcaaga aaatggtaac ggaaagagct ggattgtgtt aggaaagaaa 1380
 acagatacac caaaagcttg gaaatttata caggctgaat ag 1422

<210> 82
 <211> 473
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(25)

<400> 82
 Met Lys Lys Lys Leu Cys Thr Met Ala Leu Val Thr Ala Ile Ser Ser
 1 5 10 15
 Gly Val Val Thr Ile Pro Thr Glu Ala Gln Ala Cys Gly Ile Gly Glu
 20 25 30

Val Met Lys Gln Glu Asn Gln Glu His Lys Arg Val Lys Arg Trp Ser
 35 40 45
 Ala Glu His Pro His His Ser Asn Glu Ser Thr His Leu Trp Ile Ala
 50 55 60
 Arg Asn Ala Ile Gln Ile Met Ser Arg Asn Gln Asp Lys Thr Val Gln
 65 70 75 80
 Glu Asn Glu Leu Gln Phe Leu Asn Thr Pro Glu Tyr Lys Glu Leu Phe
 85 90 95
 Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly
 100 105 110
 Gly Thr Gly Thr Ile Gly Ile Asp Gly Leu Ile Arg Gly Gly Trp Lys
 115 120 125
 Ser His Phe Tyr Asp Pro Asp Thr Arg Lys Asn Tyr Lys Gly Glu Glu
 130 135 140
 Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly
 145 150 155 160
 Glu Tyr Phe Lys Lys Gly Asp Gln Lys Gln Ala Phe Tyr Tyr Leu Gly
 165 170 175
 Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala
 180 185 190
 Asn Phe Thr Ala Val Asp Thr Ser Ala Leu Lys Phe His Ser Ala Phe
 195 200 205
 Glu Asn Tyr Val Thr Thr Ile Gln Thr Gln Tyr Glu Val Ser Asp Gly
 210 215 220
 Glu Gly Val Tyr Asn Leu Val Asn Ser Asn Asp Pro Lys Gln Trp Ile
 225 230 235 240
 His Glu Thr Ala Arg Leu Ala Lys Val Glu Ile Gly Asn Ile Thr Asn
 245 250 255
 Asp Glu Ile Lys Ser His Tyr Asn Lys Gly Asn Asn Ala Leu Trp Gln
 260 265 270
 Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Asn Ala Gln Arg
 275 280 285
 Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Phe Val Gly Asn
 290 295 300
 Thr Ala Ala Glu Glu Ile Glu Asn Thr Val Val Lys Asp Ser Lys Gly
 305 310 315 320
 Glu Ala Ile Gln Asp Asn Lys Lys Tyr Phe Val Val Pro Ser Glu Phe
 325 330 335
 Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Arg Asn Asp Tyr Ala
 340 345 350
 Leu Leu Ser Asn Tyr Val Asp Asp Ser Lys Val His Gly Thr Pro Val
 355 360 365
 Gln Phe Val Phe Asp Lys Asp Asn Asn Gly Ile Leu His Arg Gly Glu
 370 375 380
 Ser Val Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asn Tyr Val Phe
 385 390 395 400
 Leu Asn Tyr Ser Asn Leu Thr Asn Trp Val His Leu Ala Gln Gln Lys
 405 410 415
 Thr Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asn Asn Pro Ser
 420 425 430
 Glu Tyr Tyr Leu Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Asn
 435 440 445
 Gly Asn Gly Lys Ser Trp Ile Val Leu Gly Lys Lys Thr Asp Thr Pro
 450 455 460
 Lys Ala Trp Lys Phe Ile Gln Ala Glu
 465 470

<210> 83
 <211> 1290
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 83
 atgaaaaaga tagtgatttta ttcattttgta gcagggggtta tgacatcagg cggcgtattt 60
 gccgccagtg acaatattgt ggagacgtcg accccaccac agcatcaggc cccaagcaga 120
 caggacaggg cattattcgc gggtgataca acaacctata taaaatgtgt ctacaaagtg 180
 gatggccagg atgacagcaa tccatcctca tcttggttat gggcgaaagt gggtagcaac 240
 tatgcgaagc tgaaggggta ttggtataat tcaatgccgc tggcaaacat gttttacact 300
 gaagtaccct atgcagaggt gatggacttg tgtaatagca ccctgaaggc ggtaggtgcc 360
 aactccactc ttgttattcc atatgcatcg gattacaccc tgtcctatta ctatgtgatt 420
 tggaaatcaag gggctaacca gccggttatc aacgttggcg gcagagagct tgaccgtatg 480
 gtggtctttg gtgacagctt gagcgatacc gtcaatgtct ataacggctc gtacgggtacc 540
 gtgccgaata gtacctcctg gttattgggc catttctcta acggaaagct ttggcatgaa 600
 tacctttcca cggatttgaa tctgcctagc tatgtgtggg cgactggcaa tgcggagagt 660
 ggagagaaac ccttctttaa cggattcagt aagcaggtgg attctttcag ggattatcac 720
 gctcgacta aaggctacga tattagcaag acgttggtta ccgttctggt tgggtgaaat 780
 gattttataa cggggggaaa aagcgccgat gaggtcattg agcaatatac ggtgtcattg 840
 aactacttgg ctcaactagg ggcgaagcag gttgcaattt tccgcttgcc agatttttca 900
 gtgataccca gcgtttcaac gtggacagag gctgataagg acaaactgag agagaatagt 960
 gttcagttta atgaccaagc cgagaagctg atcgctaaac taaacgcggc acatccccaa 1020
 acgacgtttt atacgctgag gttggatgac gcttttaagc aggtgttgga aaacagcgac 1080
 caatacggct ttgttaataa gactgatacc tgcctggata tttcccaagg cggatacaac 1140
 tatgccattg gggcccgcgc gaaaacggca tgtaagagca gcaatgcggc gtttgtattc 1200
 tgggacaata tgcattccgac caccaaaaaca cagggattgt tggccgatct tttaaaagat 1260
 gatgtggtac gcggcctcgc tgcgccatga 1290

<210> 84
 <211> 429
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(22)

<400> 84
 Met Lys Lys Ile Val Ile Tyr Ser Phe Val Ala Gly Val Met Thr Ser
 1 5 10 15
 Gly Gly Val Phe Ala Ala Ser Asp Asn Ile Val Glu Thr Ser Thr Pro
 20 25 30
 Pro Gln His Gln Ala Pro Ser Arg Gln Asp Arg Ala Leu Phe Ala Gly
 35 40 45
 Asp Thr Thr Thr Tyr Ile Lys Cys Val Tyr Lys Val Asp Gly Gln Asp
 50 55 60
 Asp Ser Asn Pro Ser Ser Ser Trp Leu Trp Ala Lys Val Gly Ser Asn
 65 70 75 80
 Tyr Ala Lys Leu Lys Gly Tyr Trp Tyr Asn Ser Met Pro Leu Ala Asn
 85 90 95
 Met Phe Tyr Thr Glu Val Pro Tyr Ala Glu Val Met Asp Leu Cys Asn

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      100      105      110
Ser Thr Leu Lys Ala Val Gly Ala Asn Ser Thr Leu Val Ile Pro Tyr
      115      120      125
Ala Ser Asp Tyr Thr Leu Ser Tyr Tyr Tyr Val Ile Trp Asn Gln Gly
      130      135      140
Ala Asn Gln Pro_Val Ile Asn Val Gly Gly Arg Glu Leu Asp Arg Met
145      150      155      160
Val Val Phe Gly Asp Ser Leu Ser Asp Thr Val Asn Val Tyr Asn Gly
      165      170      175
Ser Tyr Gly Thr Val Pro Asn Ser Thr Ser Trp Leu Leu Gly His Phe
      180      185      190
Ser Asn Gly Lys Leu Trp His Glu Tyr Leu Ser Thr Val Leu Asn Leu
      195      200      205
Pro Ser Tyr Val Trp Ala Thr Gly Asn Ala Glu Ser Gly Glu Lys Pro
      210      215      220
Phe Phe Asn Gly Phe Ser Lys Gln Val Asp Ser Phe Arg Asp Tyr His
225      230      235      240
Ala Arg Thr Lys Gly Tyr Asp Ile Ser Lys Thr Leu Phe Thr Val Leu
      245      250      255
Phe Gly Gly Asn Asp Phe Ile Thr Gly Gly Lys Ser Ala Asp Glu Val
      260      265      270
Ile Glu Gln Tyr Thr Val Ser Leu Asn Tyr Leu Ala Gln Leu Gly Ala
      275      280      285
Lys Gln Val Ala Ile Phe Arg Leu Pro Asp Phe Ser Val Ile Pro Ser
      290      295      300
Val Ser Thr Trp Thr Glu Ala Asp Lys Asp Lys Leu Arg Glu Asn Ser
305      310      315      320
Val Gln Phe Asn Asp Gln Ala Glu Lys Leu Ile Ala Lys Leu Asn Ala
      325      330      335
Ala His Pro Gln Thr Thr Phe Tyr Thr Leu Arg Leu Asp Asp Ala Phe
      340      345      350
Lys Gln Val Leu Glu Asn Ser Asp Gln Tyr Gly Phe Val Asn Lys Thr
      355      360      365
Asp Thr Cys Leu Asp Ile Ser Gln Gly Gly Tyr Asn Tyr Ala Ile Gly
      370      375      380
Ala Arg Ala Lys Thr Ala Cys Lys Ser Ser Asn Ala Ala Phe Val Phe
385      390      395      400
Trp Asp Asn Met His Pro Thr Thr Lys Thr His Gly Leu Leu Ala Asp
      405      410      415
Leu Leu Lys Asp Asp Val Val Arg Gly Leu Ala Ala Pro
      420      425

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<210> 85

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 85

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atgacaacac aatttagaaa cttgatattt gaaggcggcg gtgtaaaagg tgttgcttac      60
attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga      120
gggtgcagtg cgggtgcatg taacgcgctg atttttgcgc taggttacac ggtccgtgaa      180
caaaaagaga tcttacaagc caccgatttt aaccagttta tggataactc ttgggggggtt      240
attcgtgata ttcgcaggct tgctcgagac tttggctgga ataagggtga tttctttagt      300
agctggatag gtgatttgat tcatcgctcgt ttggggaatc gccgagcgac gttcaaaagat      360

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ctgcaaaaagg ccaagcttcc tgatctttat gtcacggtta ctaatctgtc tacaggggtt 420
gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc 480
tccatgtcga taccgctgtt ctttgcggcc gtgcgtcacg gtgatcgaca agatgtgtat 540
gtcgatgggg gtgttcaact taactatccg attaaactgt ttgatcggga gcgttacatt 600
gatttggcca aagatcccg tgccgttcgg cgaacgggtt attacaaca agaaaacgct 660
cgctttcagc ttgatcggcc gggccatagc ccctatgtt acaatcgcca gaccttgggt 720
ttgcgactgg atagtcgcga ggagatagg ctctttcgtt atgacgaacc cctcaagggc 780
aaacccatta agtccttcac tgactacgct cgacaacttt tcggtgcgtt gatgaatgca 840
caggaaaaga ttcacttaca tggcgatgat tggcaacgca cgatctatat cgatacattg 900
gatgtgggta cgacggactt caatctttct gatgcaacta agcaagcact gattgagcaa 960
ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgtaga gaagcctgtg 1020
aatagatgg agtcatag 1038

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<210> 86

<211> 345

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 86

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Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
1      5      10      15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
20      25      30
Leu Gln Asp Ile Arg Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
35      40      45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
50      55      60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
65      70      75      80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly
85      90      95
Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
100      105      110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
115      120      125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
130      135      140
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
145      150      155      160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
165      170      175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
180      185      190
Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
195      200      205
Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
210      215      220
Asp Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
225      230      235      240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
245      250      255
Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
260      265      270
Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly

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      275              280              285
Asp Asp Trp Gln Arg Thr Ile Tyr Ile Asp Thr Leu Asp Val Gly Thr
      290              295              300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
305              310              315
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Leu
      325              330              335
Glu Lys Pro Val Asn Arg Val Glu Ser
      340              345

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<210> 87

<211> 870

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 87

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atgtcaaaga aactcgtaat atcggtagcg ggcggcggag cactcggaat cggaccactc      60
gcattcctgt gcaagattga acagatgctg ggaaagaaga taccacaggt tgcgcaggca      120
tacgccggca cttcaaccgg agcaataatt gcggcaggac tggccgaagg ctactccgcg      180
catgaactgt tcgacctata caaatcaaat ctcagcaaga tattcaccaa atacagctgg      240
tacaacgcc tgcagccaac gtgtcctaca tatgacaaca gtaacctaaa gaaattactg      300
aaggacaaat tcaagggcaa ggtcggcgac tggaaaactc ccgtatacat cccggcaaca      360
cacatgaacg gccaatccgt agaaaagggtg tgggacttgg gtgacaagaa tgttgacaag      420
tggtttgcca ttctgacaag taccgcggca ccaacctatt tcgactgcat atacgacgac      480
gagaagaact gctacatcga tgggtggcatg tggtgcaacg caccaatcga tgtgcttaat      540
gcaggcctga tcaagtccgg ctggtccaac tacaagggtcc tggacctgga gaccggcatg      600
gacacaccga atacggaaag cggaaacaag acacttctcg gatgggggga atacatcata      660
agcaactggg tagcccgttc cagcaagtcg gcggaatacg aggtaaaggc cataatcggg      720
gaagacaatg tatgtgttgc ccgtccatac gtaagcaaga aaccgaagat ggatgacgtg      780
gacagcaaga cgctggatga agtcgtggat atctgggaaa actacttcta cgccaagcag      840
aaagacatcg catcgtggct gaaaatctag

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<210> 88

<211> 289

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 88

```

Met Ser Lys Lys Leu Val Ile Ser Val Ala Gly Gly Gly Ala Leu Gly
  1              5              10              15
Ile Gly Pro Leu Ala Phe Leu Cys Lys Ile Glu Gln Met Leu Gly Lys
      20              25              30
Lys Ile Pro Gln Val Ala Gln Ala Tyr Ala Gly Thr Ser Thr Gly Ala
      35              40              45
Ile Ile Ala Ala Gly Leu Ala Glu Gly Tyr Ser Ala His Glu Leu Phe
      50              55              60
Asp Leu Tyr Lys Ser Asn Leu Ser Lys Ile Phe Thr Lys Tyr Ser Trp
      65              70              75              80
Tyr Lys Arg Leu Gln Pro Thr Cys Pro Thr Tyr Asp Asn Ser Asn Leu
      85              90              95
Lys Lys Leu Leu Lys Asp Lys Phe Lys Gly Lys Val Gly Asp Trp Lys

```

<210>	89
<211>	1422
<212>	DNA
<213>	Unknown

<220>
<223> Obtained from an environmental sample.

<400>	89								
atgaaaaaga	aattatgtac	actggctttt	gtaacagcaa	tatcttctat	cgctatcaca				60
attccaacag	aagcacaagc	ttgtggaata	ggcgaagtaa	tgaaacaggag	gaaccaagag				120
cacaaacgtg	tgaagagatg	gtctgcggaa	catccacatc	atcctaatga	aagtacgcac				180
ttatggattg	cgcgaaatgc	aattcaataa	atggcccgtg	atcaagataa	gacggttcaa				240
gaaaatgaat	taccatTTTT	aaataactcct	gaatataagg	agttatttga	aagaggtctt				300
tatgatgctg	tataaccttga	tgaattttaac	gatggaggta	cagggtacaat	cggcattgat				360
gggctaatta	aaggagggtg	gaaatctcat	ttttacgatc	ccgatacgag	aaagaactat				420
aaaggggaag	aagaaccaac	agctctctct	caaggagata	aatatTTTaa	attagcaggc				480
gattacttta	agaaagagga	ttggaaaacaa	gctttctatt	at tt aggtgt	tgcgacgcac				540
tacttcacag	atgctactca	gccaatgcat	gctgctaatt	ttacagccgt	cgacacgagt				600
gctttaaagt	ttcatagcgc	ttttgaaaat	tatgtgacga	caattcgacg	acagtatgaa				660
gtatctgatg	gtgagggcgt	atataatttta	gtgaatttcta	atgatccaaa	acagtggatc				720
catgaacacg	cgagactcgc	aaaagtggaa	atcgggaaca	ttaccaatga	cgagattaa				780
tctcactata	ataaaggaaa	caatgctctt	tggcaacaag	aagttatgcc	agctgtccag				840
aggagtttag	agaacgcaca	aagaaacacg	gcgggattta	ttcattttatg	gtttaaaaaca				900
tttgttggca	atactgccgc	tgaagaaatt	gaaaatactg	tagtgaaaga	ttctaaagga				960
gaagcaatac	aagataataa	aaaatacttc	gtagtGCCaa	gtgagtttct	aaatagaggt				1020
ttgacctttg	aagtatatgc	aaggaatgac	tatgcatctat	tatctaatta	cgtagatgat				1080
agtaaaagttc	atggtacgcc	agttcagttt	gtatttgata	aagataataa	cggtatcctt				1140
catcgaggag	aaagataact	acggaataatg	acgcaatcta	actatgataa	ttacgtattt				1200
ctaaaactact	cctaacttgac	aaactgggta	catcttgCGC	aacaaaaaac	aaatactgca				1260
caqttttaaag	tgtatccaaa	tccgaataac	ccatctgaat	attacctata	tacagatgga				1320

taccagtaa attatcaaga aaatggtaac ggaaagagct ggattgtgtt aggaaagaaa 1380
 acagatacac caaaagcttg gaaatttata caggctgaat ag 1422

<210> 90
 <211> 473
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(25)

<400> 90
 Met Lys Lys Lys Leu Cys Thr Leu Ala Phe Val Thr Ala Ile Ser Ser
 1 5 10 15
 Ile Ala Ile Thr Ile Pro Thr Glu Ala Gln Ala Cys Gly Ile Gly Glu
 20 25 30
 Val Met Lys Gln Glu Asn Gln Glu His Lys Arg Val Lys Arg Trp Ser
 35 40 45
 Ala Glu His Pro His His Pro Asn Glu Ser Thr His Leu Trp Ile Ala
 50 55 60
 Arg Asn Ala Ile Gln Ile Met Ala Arg Asn Gln Asp Lys Thr Val Gln
 65 70 75 80
 Glu Asn Glu Leu Gln Phe Leu Asn Thr Pro Glu Tyr Lys Glu Leu Phe
 85 90 95
 Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly
 100 105 110
 Gly Thr Gly Thr Ile Gly Ile Asp Gly Leu Ile Lys Gly Gly Trp Lys
 115 120 125
 Ser His Phe Tyr Asp Pro Asp Thr Arg Lys Asn Tyr Lys Gly Glu Glu
 130 135 140
 Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly
 145 150 155 160
 Asp Tyr Phe Lys Lys Glu Asp Trp Lys Gln Ala Phe Tyr Tyr Leu Gly
 165 170 175
 Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala
 180 185 190
 Asn Phe Thr Ala Val Asp Thr Ser Ala Leu Lys Phe His Ser Ala Phe
 195 200 205
 Glu Asn Tyr Val Thr Thr Ile Gln Thr Gln Tyr Glu Val Ser Asp Gly
 210 215 220
 Glu Gly Val Tyr Asn Leu Val Asn Ser Asn Asp Pro Lys Gln Trp Ile
 225 230 235 240
 His Glu Thr Ala Arg Leu Ala Lys Val Glu Ile Gly Asn Ile Thr Asn
 245 250 255
 Asp Glu Ile Lys Ser His Tyr Asn Lys Gly Asn Asn Ala Leu Trp Gln
 260 265 270
 Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Asn Ala Gln Arg
 275 280 285
 Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Phe Val Gly Asn
 290 295 300
 Thr Ala Ala Glu Glu Ile Glu Asn Thr Val Val Lys Asp Ser Lys Gly
 305 310 315 320
 Glu Ala Ile Gln Asp Asn Lys Lys Tyr Phe Val Val Pro Ser Glu Phe
 325 330 335

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Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Arg Asn Asp Tyr Ala
      340                      345                      350
Leu Leu Ser Asn Tyr Val Asp Asp Ser Lys Val His Gly Thr Pro Val
      355                      360                      365
Gln Phe Val Phe Asp Lys Asp Asn Asn Gly Ile Leu His Arg Gly Glu
      370                      375                      380
Ser Ile Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asn Tyr Val Phe
385                      390                      395                      400
Leu Asn Tyr Ser Asn Leu Thr Asn Trp Val His Leu Ala Gln Gln Lys
      405                      410                      415
Thr Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asn Asn Pro Ser
      420                      425                      430
Glu Tyr Tyr Leu Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Asn
      435                      440                      445
Gly Asn Gly Lys Ser Trp Ile Val Leu Gly Lys Lys Thr Asp Thr Pro
450                      455                      460
Lys Ala Trp Lys Phe Ile Gln Ala Glu
465                      470

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<210> 91

<211> 1035

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 91

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atgacaaccc aatttagaaa cctgatcttt gagggcggcg gtgtaaaggg cattgcttac      60
gtcggagcaa tgcagattct tgaaaatcgt ggtgtattac aagatattca ccgagtcgga      120
ggttgtagtg cgggtgcgat taacgcgctg atttttgcgc tgggttacac agtccgtgag      180
caaaaagaga tcttacaaat taccgatttt aaccagttaa tggataactc gtggggtggt      240
attcgggata ttgcgaggct tgcgagagaa tttggctgga ataagggtaa cttctttaat      300
acctggatag gtgatttgat tcatcgctcg ttgggtaatc gccgagccac gttcaaagat      360
ctgcaaaagg caaagcttcc tgatctttat gtcatcggtc ctaatctgtc tacagggttt      420
gcagagggtt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc      480
tccatgtcga taccgctgtt ctttgcggcc gtgcgtcacg gtgatcgaca agatgtgtat      540
gtcgtatggg gtgtgcagct taactacccg atcaagctgt ttgatcgaac tcgttatatt      600
gacctcgcca aagatccggg tgctgctcgc cacacgggtt attacaataa agagaatgct      660
cgttttcagc ttgagcgacc gggccacagt ccttatgtgt acaatcgcca aacattaggc      720
ttgcgtcttg acagtcgtga agagatagcg ctgtttcgtt acgacgaacc tcttcagggt      780
aaaccatta agtccttcac tgactacgct cgacaacttt ttggtgctgt gaagaatgca      840
caggaataca ttcacctaca tggcgatgat tggcagcgca cggctctatat cgatacattg      900
gatgtgggta cgacggattt caatctttct gatgcaacca agcaagcact gattgaacag      960
ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgtttga gaagcctgtg     1020
aatagagtgg agtaa                                     1035

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<210> 92

<211> 344

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 92

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Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys

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1	5	10	15
Gly Ile Ala Tyr Val Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val			
20	25	30	
Leu Gln Asp Ile His Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn			
35	40	45	
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile			
50	55	60	
Leu Gln Ile Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val			
65	70	75	80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Glu Phe Gly Trp Asn Lys Gly			
85	90	95	
Asn Phe Phe Asn Thr Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly			
100	105	110	
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp			
115	120	125	
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe			
130	135	140	
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile			
145	150	155	160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg			
165	170	175	
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys			
180	185	190	
Leu Phe Asp Arg Thr Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala			
195	200	205	
Ala Arg His Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu			
210	215	220	
Glu Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly			
225	230	235	240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Ala Leu Phe Arg Tyr Asp Glu			
245	250	255	
Pro Leu Gln Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln			
260	265	270	
Leu Phe Gly Ala Leu Lys Asn Ala Gln Glu Asn Ile His Leu His Gly			
275	280	285	
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr			
290	295	300	
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln			
305	310	315	320
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Phe			
325	330	335	
Glu Lys Pro Val Asn Arg Val Glu			
340			

<210> 93

<211> 963.

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 93

gtgattactt	tgataaaaaa	atgtttatta	gtattgacga	tgactctatt	atcagggggt	60
ttcgtaccgc	tcgagccatc	atatgtctact	gaaaattatc	caaagtattt	taaactgttg	120
caacataatg	tattttttatt	gcctgaatca	gtttcttatt	ggggtcagga	cgaacgtgca	180
gattatatga	gtaatgcaga	ttactttaag	ggacatgatg	ctctgctctt	aaatgagctt	240

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tttgacaatg gaaattcgaa cgtgctgcta atgaacttat ccaaggaata tacatatcaa 300
acgccagtg c ttggccgttc gatgagtggg tgggatgaaa ctagaggaag ctattccta 360
tttgtacccg aagatgggtg ttagcaatt atcagtaa at ggccaatcgt ggagaaaata 420
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat 480
gcaaaagtac aaaaagggga taaattctat catcttatca gcactcatgc tcaagccgaa 540
gataccgggt gtgatcaggg tgaaggagca gaaattcgct attcacagtt tcaagaaatc 600
aacgacttta ttaaaaataa aaacattccg aaagatgaag tggatatttat tgggtggtgac 660
tttaaatgtg tgaagagtga cacaacagag tacaatagca tggttatcaac attaaatgtc 720
aatgcgccta ccgaatattt agggcataac tctacttggg acccagaaac gaacagcatt 780
acaggttaca attaccctga ttatgcgcca cagcatttag attatatattt tgtggaaaaa 840
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg 900
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa 960
taa

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<210> 94

<211> 320

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(29)

<400> 94

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Met Ile Thr Leu Ile Lys Lys Cys Leu Leu Val Leu Thr Met Thr Leu
1 5 10 15
Leu Ser Gly Val Phe Val Pro Leu Gln Pro Ser Tyr Ala Thr Glu Asn
20 25 30
Tyr Pro Asn Asp Phe Lys Leu Leu Gln His Asn Val Phe Leu Leu Pro
35 40 45
Glu Ser Val Ser Tyr Trp Gly Gln Asp Glu Arg Ala Asp Tyr Met Ser
50 55 60
Asn Ala Asp Tyr Phe Lys Gly His Asp Ala Leu Leu Leu Asn Glu Leu
65 70 75 80
Phe Asp Asn Gly Asn Ser Asn Val Leu Leu Met Asn Leu Ser Lys Glu
85 90 95
Tyr Thr Tyr Gln Thr Pro Val Leu Gly Arg Ser Met Ser Gly Trp Asp
100 105 110
Glu Thr Arg Gly Ser Tyr Ser Asn Phe Val Pro Glu Asp Gly Gly Val
115 120 125
Ala Ile Ile Ser Lys Trp Pro Ile Val Glu Lys Ile Gln His Val Tyr
130 135 140
Ala Asn Gly Cys Gly Ala Asp Tyr Tyr Ala Asn Lys Gly Phe Val Tyr
145 150 155 160
Ala Lys Val Gln Lys Gly Asp Lys Phe Tyr His Leu Ile Ser Thr His
165 170 175
Ala Gln Ala Glu Asp Thr Gly Cys Asp Gln Gly Glu Gly Ala Glu Ile
180 185 190
Arg His Ser Gln Phe Gln Glu Ile Asn Asp Phe Ile Lys Asn Lys Asn
195 200 205
Ile Pro Lys Asp Glu Val Val Phe Ile Gly Gly Asp Phe Asn Val Met
210 215 220
Lys Ser Asp Thr Thr Glu Tyr Asn Ser Met Leu Ser Thr Leu Asn Val
225 230 235 240
Asn Ala Pro Thr Glu Tyr Leu Gly His Asn Ser Thr Trp Asp Pro Glu

```

				245					250					255			
Thr	Asn	Ser	Ile	Thr	Gly	Tyr	Asn	Tyr	Pro	Asp	Tyr	Ala	Pro	Gln	His		
			260					265					270				
Leu	Asp	Tyr	Ile	Phe	Val	Glu	Lys	Asp	His	Lys	Gln	Pro	Ser	Ser	Trp		
	275						280					285					
Val	Asn	Glu	Thr	Ile	Thr	Pro	Lys	Ser	Pro	Thr	Trp	Lys	Ala	Ile	Tyr		
	290					295					300						
Glu	Tyr	Asn	Asp	Tyr	Ser	Asp	His	Tyr	Pro	Val	Lys	Ala	Tyr	Val	Lys		
305					310					315					320		

<210> 95

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 95

atggcttcac	aattcaggaa	tctggtat	gaaggaggtg	gtgtaaaagg	gattgcgtac	60
ataggtgcga	tgcaggtgct	ggatcagcgc	ggttatttgg	gtgataacat	caaacgcgtt	120
ggtggaacca	gtgcaggtgc	cataaatgcg	ctgatttatt	cgttaggata	tgacatccac	180
gaacaacaag	agatactgaa	ctctacagat	tttaaaaagt	ttatggataa	ctcttttggga	240
tttgtgaggg	atttcagaag	gctatggaat	gaatttggat	ggaatagagg	agactttttt	300
cttaaatggt	caggtgagct	gatcaaaaat	aaattgggca	cctcaaaagc	cacctttcag	360
gatttgaagg	atgccgggtca	gccagatttg	tatgtaattg	gaacaaattt	atcgacgggg	420
ttttccgaga	ctttttcata	tgaacgtcac	cccgatatga	ctcttgcaga	agccgtaaga	480
atcagtatgt	cgcttccgct	gtttttcagg	gctgtgcggt	tgggcgacag	gaatgatgta	540
tatgtggatg	gtgggggttca	gctcaattac	ccggtaaaac	tatttgatcg	tgaaaaatat	600
attgatattg	ataatgaggc	ggctgcagca	cgatttactg	attattacaa	caaagaaaat	660
gccagatttt	cgctccagcg	gcctggacga	agcccctatg	tatataatcg	tcaaaccctt	720
ggtttgagac	tggatacagc	cgaagaaatt	gcgcttttca	ggtacgatga	acccattcag	780
gggaaagaga	tcaaacgggt	tccggaatat	gcaaaggctc	tgatcggcgc	actaatgcag	840
gtgcaggaaa	acatacatct	ccacagtgac	gactggcagc	gtacgctgta	tatcaatacc	900
ctggatgtaa	aaaccacaga	ttttgaatta	accgatgaga	aaaaaaagga	actggtagaa	960
cagggaatcc	ttggcgcgga	aacctatttc	aaatggtttg	aagacaggga	tgaagtagtt	1020
gtaaaccgcc	ttgcttag					1038

<210> 96

<211> 345

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 96

Met	Ala	Ser	Gln	Phe	Arg	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Ile	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Val	Leu	Asp	Gln	Arg	Gly	Tyr
		20						25					30		
Leu	Gly	Asp	Asn	Ile	Lys	Arg	Val	Gly	Gly	Thr	Ser	Ala	Gly	Ala	Ile
		35					40					45			
Asn	Ala	Leu	Ile	Tyr	Ser	Leu	Gly	Tyr	Asp	Ile	His	Glu	Gln	Gln	Glu
	50					55				60					
Ile	Leu	Asn	Ser	Thr	Asp	Phe	Lys	Lys	Phe	Met	Asp	Asn	Ser	Phe	Gly
65					70				75						80

Phe Val Arg Asp Phe Arg Arg Leu Trp Asn Glu Phe Gly Trp Asn Arg
 85 90 95
 Gly Asp Phe Phe Leu Lys Trp Ser Gly Glu Leu Ile Lys Asn Lys Leu
 100 105 110
 Gly Thr Ser Lys Ala Thr Phe Gln Asp Leu Lys Asp Ala Gly Gln Pro
 115 120 125
 Asp Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ser Glu Thr
 130 135 140
 Phe Ser Tyr Glu Arg His Pro Asp Met Thr Leu Ala Glu Ala Val Arg
 145 150 155 160
 Ile Ser Met Ser Leu Pro Leu Phe Phe Arg Ala Val Arg Leu Gly Asp
 165 170 175
 Arg Asn Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Val
 180 185 190
 Lys Leu Phe Asp Arg Glu Lys Tyr Ile Asp Met Asp Asn Glu Ala Ala
 195 200 205
 Ala Ala Arg Phe Thr Asp Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Ser
 210 215 220
 Leu Gln Arg Pro Gly Arg Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu
 225 230 235 240
 Gly Leu Arg Leu Asp Thr Ala Glu Glu Ile Ala Leu Phe Arg Tyr Asp
 245 250 255
 Glu Pro Ile Gln Gly Lys Glu Ile Lys Arg Phe Pro Glu Tyr Ala Lys
 260 265 270
 Ala Leu Ile Gly Ala Leu Met Gln Val Gln Glu Asn Ile His Leu His
 275 280 285
 Ser Asp Asp Trp Gln Arg Thr Leu Tyr Ile Asn Thr Leu Asp Val Lys
 290 295 300
 Thr Thr Asp Phe Glu Leu Thr Asp Glu Lys Lys Lys Glu Leu Val Glu
 305 310 315 320
 Gln Gly Ile Leu Gly Ala Glu Thr Tyr Phe Lys Trp Phe Glu Asp Arg
 325 330 335
 Asp Glu Val Val Val Asn Arg Leu Ala
 340 345

<210> 97

<211> 1422

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 97

atgaaaagga	aactatgtac	atgggctctc	gtaacagcaa	tagcttctag	tactgcggtg	60
attccaacag	cagcagaagc	ttgtggatta	ggagaagtaa	tcaaacaaga	gaatcaagag	120
cacaaacgtg	tgaaaagatg	gtctgcggtg	catccgcatc	attcacatga	aagtacccat	180
ttatggattg	cacaaaatgc	gattcaaatt	atgagccgta	atcaagataa	gacggttcaa	240
gaaaatgaat	tacaattttt	aaataccoct	gaatataagg	agttatttga	aagaggtctt	300
tatgatgctg	attaccttga	tgaattttaac	gatggaggta	caggtataat	cggcattgat	360
gggctaattc	gaggagggtg	gaaatctcat	ttctacgatc	ccgatacaag	aaagaactat	420
aaaggggagg	aagaaccaac	agctctttct	caaggagata	aatattttta	attagcaggt	480
gaatacttta	agaagaatga	ttggaaacag	gctttctatt	athtaggtgt	tgcgacgcac	540
tactttacag	atgctactca	gccaatgcat	gctgctaatt	ttacagctgt	cgacaggagt	600
gctataaagt	ttcatagtgc	ttttgaagat	tatgtgacga	caattcagga	acagtttaaa	660
gtatcagatg	gagagggaaa	atataattta	gtaaattcta	atgatccgaa	acagtggatc	720
catgaaacag	cgagactcgc	aaaagtggaa	atcgggaaca	ttaccaatga	tgtgattaaa	780

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tctcactata ataaaggaaa caatgctctt tggcagcaag aagttatgcc agctgttcag      840
agaagtttag aacaagccca aagaaatacg gcgggattta ttcatttatg gtttaaaaca      900
tatgtttgaa aaacagctgc tgaagatatt gaaaatacta tagtgaaaga ttctagggga      960
gaagcaatac aagagaataa aaaatacttt gtagtaccaa gtgagttttt aaatagaggc     1020
ttaacatttg aagtgtatgc tgcttatgac tatgcgttat tatctaacca tgtggatgat     1080
aataatattc atggtacacc ggttcaaatt gtatttgata aagaaaataa tgggatcctt     1140
catcaaggag aaagtgcatt gttaaagatg acacaatcca actacgataa ttatgtattt     1200
ctaaattatt ctatcataac aaattgggta catcttgcaa aaagagaaaa caatactgca     1260
cagttttaaag tgtatccaaa tccaaataat ccaactgaat atttcatata tacagatggc     1320
tatccagtta attatcaaga aaaaggtaaa gagaaaagct ggattgtttt aggaaagaaa     1380
acggataaac caaaagcatg gaaatttata caggcggaat aa                        1422

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<210> 98

<211> 473

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(25)

<400> 98

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Met Lys Arg Lys Leu Cys Thr Trp Ala Leu Val Thr Ala Ile Ala Ser
 1          5          10          15
Ser Thr Ala Val Ile Pro Thr Ala Ala Glu Ala Cys Gly Leu Gly Glu
      20          25          30
Val Ile Lys Gln Glu Asn Gln Glu His Lys Arg Val Lys Arg Trp Ser
      35          40          45
Ala Glu His Pro His His Ser His Glu Ser Thr His Leu Trp Ile Ala
      50          55          60
Gln Asn Ala Ile Gln Ile Met Ser Arg Asn Gln Asp Lys Thr Val Gln
      65          70          75          80
Glu Asn Glu Leu Gln Phe Leu Asn Thr Pro Glu Tyr Lys Glu Leu Phe
      85          90          95
Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly
      100          105          110
Gly Thr Gly Ile Ile Gly Ile Asp Gly Leu Ile Arg Gly Gly Trp Lys
      115          120          125
Ser His Phe Tyr Asp Pro Asp Thr Arg Lys Asn Tyr Lys Gly Glu Glu
      130          135          140
Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly
      145          150          155          160
Glu Tyr Phe Lys Lys Asn Asp Trp Lys Gln Ala Phe Tyr Tyr Leu Gly
      165          170          175
Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala
      180          185          190
Asn Phe Thr Ala Val Asp Arg Ser Ala Ile Lys Phe His Ser Ala Phe
      195          200          205
Glu Asp Tyr Val Thr Thr Ile Gln Glu Gln Phe Lys Val Ser Asp Gly
      210          215          220
Glu Gly Lys Tyr Asn Leu Val Asn Ser Asn Asp Pro Lys Gln Trp Ile
      225          230          235          240
His Glu Thr Ala Arg Leu Ala Lys Val Glu Ile Gly Asn Ile Thr Asn
      245          250          255
Asp Val Ile Lys Ser His Tyr Asn Lys Gly Asn Asn Ala Leu Trp Gln

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260 265 270
 Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Gln Ala Gln Arg
 275 280 285
 Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Tyr Val Gly Lys
 290 295 300
 Thr Ala Ala Glu Asp Ile Glu Asn Thr Ile Val Lys Asp Ser Arg Gly
 305 310 315 320
 Glu Ala Ile Gln Glu Asn Lys Lys Tyr Phe Val Val Pro Ser Glu Phe
 325 330 335
 Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Ala Tyr Asp Tyr Ala
 340 345 350
 Leu Leu Ser Asn His Val Asp Asp Asn Asn Ile His Gly Thr Pro Val
 355 360 365
 Gln Ile Val Phe Asp Lys Glu Asn Asn Gly Ile Leu His Gln Gly Glu
 370 375 380
 Ser Ala Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asn Tyr Val Phe
 385 390 395 400
 Leu Asn Tyr Ser Ile Ile Thr Asn Trp Val His Leu Ala Lys Arg Glu
 405 410 415
 Asn Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asn Asn Pro Thr
 420 425 430
 Glu Tyr Phe Ile Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Lys
 435 440 445
 Gly Lys Glu Lys Ser Trp Ile Val Leu Gly Lys Lys Thr Asp Lys Pro
 450 455 460
 Lys Ala Trp Lys Phe Ile Gln Ala Glu
 465 470

<210> 99

<211> 1053

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 99

atggcaaagc	gttttattct	ttcgatcgat	ggtggtggca	ttcgcgggat	catcccggcg	60
gccatcctgg	tggagctggc	caagcggttg	gaggggctgc	cgcttcacaa	ggcattcgac	120
atgatcgccg	ggacatccac	cggcggcac	attgcggcgg	ggctgacatg	cccgcaccc	180
gacgatgagg	agacggcgcc	gtgcacgccg	accgatcttc	tcaagcttta	tgtcgatcac	240
ggcggcaaga	tcttcgagaa	aaacccgatc	ctcggcctca	tcaacccatt	cggcctcaac	300
gatccgcgct	accagccaga	tgagctggaa	aacaggctga	aggcgcagct	cggcttgacg	360
gcgacgctcg	ataaagggtc	caccaaggtg	ctgatcacgg	cctatgatat	ccagcagcgg	420
caggcgctgt	tcatggcaaa	caccgacaac	gagaacagca	atttccgcta	ctgggaggca	480
gcgcggggcg	catcggccgc	acccacctat	tttccgcggg	cgctgatcga	aagggttggc	540
gagaagaaca	aggacaagcg	cttcgtgcc	ttgatcgacg	gcggcgctct	cgccaacgat	600
cctatccttg	ccgcctatgt	ggaggcgcg	aagcagaaat	ggggcaatga	cgagctcggt	660
ttcctgtcgc	ttggtaccgg	ccagcaaaac	cgcccgatcg	cctatcagga	ggccaagggc	720
tggggcattt	taggctggat	gcagccgtct	catgacacgc	cgctgatctc	gatcctgatg	780
cagggacagg	cgagcacccg	ctcctatcag	gccaatgcgc	tgctcaatcc	gcccggcacc	840
aagatcgact	attcgaccgt	ggtgacgaag	gacaacgcgg	cttcgctcag	ctatttccgt	900
ctcgaccggc	agctgagctc	gaaggagaac	gacgcgctgg	acgacgcac	gcccgaatac	960
atcagggcgc	tgaaggcaat	cgccgcgcaa	atcatcaagg	ataacgcgcc	ggcgctcgac	1020
gaaatcgcca	aacgcaccc	ggccaaccaa	taa			1053

<210> 100

<211> 350
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 100
 Met Ala Lys Arg Phe Ile Leu Ser Ile Asp Gly Gly Gly Ile Arg Gly
 1 5 10 15
 Ile Ile Pro Ala Ala Ile Leu Val Glu Leu Ala Lys Arg Leu Glu Gly
 20 25 30
 Leu Pro Leu His Lys Ala Phe Asp Met Ile Ala Gly Thr Ser Thr Gly
 35 40 45
 Gly Ile Ile Ala Ala Gly Leu Thr Cys Pro His Pro Asp Asp Glu Glu
 50 55 60
 Thr Ala Ala Cys Thr Pro Thr Asp Leu Leu Lys Leu Tyr Val Asp His
 65 70 75 80
 Gly Gly Lys Ile Phe Glu Lys Asn Pro Ile Leu Gly Leu Ile Asn Pro
 85 90 95
 Phe Gly Leu Asn Asp Pro Arg Tyr Gln Pro Asp Glu Leu Glu Asn Arg
 100 105 110
 Leu Lys Ala Gln Leu Gly Leu Thr Ala Thr Leu Asp Lys Gly Leu Thr
 115 120 125
 Lys Val Leu Ile Thr Ala Tyr Asp Ile Gln Gln Arg Gln Ala Leu Phe
 130 135 140
 Met Ala Asn Thr Asp Asn Glu Asn Ser Asn Phe Arg Tyr Trp Glu Ala
 145 150 155 160
 Ala Arg Ala Thr Ser Ala Ala Pro Thr Tyr Phe Pro Pro Ala Leu Ile
 165 170 175
 Glu Arg Val Gly Glu Lys Asn Lys Asp Lys Arg Phe Val Pro Leu Ile
 180 185 190
 Asp Gly Gly Val Phe Ala Asn Asp Pro Ile Leu Ala Ala Tyr Val Glu
 195 200 205
 Ala Arg Lys Gln Lys Trp Gly Asn Asp Glu Leu Val Phe Leu Ser Leu
 210 215 220
 Gly Thr Gly Gln Gln Asn Arg Pro Ile Ala Tyr Gln Glu Ala Lys Gly
 225 230 235 240
 Trp Gly Ile Leu Gly Trp Met Gln Pro Ser His Asp Thr Pro Leu Ile
 245 250 255
 Ser Ile Leu Met Gln Gly Gln Ala Ser Thr Ala Ser Tyr Gln Ala Asn
 260 265 270
 Ala Leu Leu Asn Pro Pro Gly Thr Lys Ile Asp Tyr Ser Thr Val Val
 275 280 285
 Thr Lys Asp Asn Ala Ala Ser Leu Ser Tyr Phe Arg Leu Asp Arg Gln
 290 295 300
 Leu Ser Ser Lys Glu Asn Asp Ala Leu Asp Asp Ala Ser Pro Glu Asn
 305 310 315 320
 Ile Arg Ala Leu Lys Ala Ile Ala Ala Gln Ile Ile Lys Asp Asn Ala
 325 330 335
 Pro Ala Leu Asp Glu Ile Ala Lys Arg Ile Leu Ala Asn Gln
 340 345 350

<210> 101
 <211> 996
 <212> DNA
 <213> Bacteria

[illegible]

<210> 102

$\langle 211 \rangle$ 331

<212> PRT

<213> Bacteria

<220>

<221> SIGNAL

<222> (1) ... (39)

<400> 102

Leu 1	Ser	Leu	Val	Ala 5	Ser	Leu	Arg	Arg	Ala 10	Pro	Gly	Ala	Ala	Leu 15	Ala
Leu	Ala	Leu	Ala	Ala 20	Ala	Thr	Leu	Ala 25	Val	Thr	Ala	Gln	Gly 30	Ala	Thr
Ala	Ala	Pro	Ala	Ala 35	Ala	Ala	Ala 40	Glu	Ala	Pro	Arg	Leu 45	Lys	Val	Leu
Thr	Tyr 50	Asn	Thr	Phe	Leu	Phe 55	Ser	Lys	Thr	Leu	Tyr 60	Pro	Asn	Trp	Gly
Gln 65	Asp	His	Arg	Ala 70	Lys	Ala 75	Ile	Pro	Thr	Ala 75	Pro	Phe	Tyr	Gln 80	Gly
Gln	Asp	Val	Val	Val 85	Leu	Gln	Glu	Ala 90	Phe	Asp	Asn	Ser	Ala 95	Ser	Asp
Ala	Leu	Lys	Ala 100	Asn	Ser	Ala	Gly 105	Gln	Tyr	Pro	Tyr	Gln 110	Thr	Pro	Val
Val	Gly 115	Arg	Gly	Thr	Gly	Gly 120	Trp	Asp	Ala	Thr	Gly 125	Gly	Ser	Tyr	Ser
Ser 130	Thr	Thr	Pro	Glu	Asp	Gly 135	Gly	Val	Thr	Ile	Leu 140	Ser	Lys	Trp	Pro
Ile 145	Val	Arg	Lys	Glu 150	Gln	Tyr	Val	Tyr	Lys 155	Asp	Ala	Cys	Gly	Ala 160	Asp
Trp	Trp	Ser	Asn 165	Lys	Gly	Phe	Ala 170	Tyr	Val 170	Val	Leu	Asn	Val 175	Asn	Gly
Ser	Lys	Val 180	His	Val	Leu	Gly	Thr 185	His	Ala 185	Gln	Ser	Thr 190	Asp 190	Pro	Gly
Cys	Ser 195	Ala	Gly	Glu	Ala	Val	Gln 200	Met	Arg	Ser	Arg 205	Gln 205	Phe	Lys	Ala
Ile	Asp	Ala	Phe	Leu	Asp	Ala	Lys	Asn	Ile	Pro	Ala	Gly	Glu	Gln	Val

210	215	220
Ile Val Ala Gly Asp Met Asn Val Asp Ser Arg Thr Pro Glu Tyr Gly		
225	230	235
Thr Met Leu Ala Asp Ala Gly Leu Ala Ala Ala Asp Ala Arg Thr Gly		240
	245	250
His Pro Tyr Ser Phe Asp Thr Glu Leu Asn Ser Ile Ala Ser Glu Arg		255
	260	265
Tyr Pro Asp Asp Pro Arg Glu Asp Leu Asp Tyr Val Leu Tyr Arg Ala		270
	275	280
Gly Asn Ala Arg Pro Ala Asn Trp Thr Asn Asn Val Val Leu Glu Lys		285
	290	295
Ser Ala Pro Trp Thr Val Ser Ser Trp Gly Lys Ser Tyr Thr Tyr Thr		300
305	310	315
Asn Leu Ser Asp His Tyr Pro Val Thr Gly Phe		320
	325	330

<210> 103

<211> 2205

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 103

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ccggcgaaga	tcgatgtcgt	gaccggtgcc	tcggcgggaa	gcatgacgct	gggcgtagtc	180
atctaccacc	tcatgcgggg	atcgtcgacc	gatgagattc	tccgcgatct	gaggcggtcg	240
tgggtggaaa	tgatctcggt	cgacggcctc	tgctccgcga	acctgtcccg	tcacgacaag	300
ccgagcctgt	tttccgatga	gatcgtccgg	aagatcgccg	ccaccgtcat	cgatatgggg	360
cgcaagctcg	aggcggtctc	tcatccgctt	ttcgccgacg	aactcgtagc	ctcgttcgca	420
ctgacgaacc	tgaacggcat	ccccgcccgt	acggaggggc	agctcatccg	gcaggcaaag	480
ggaggcggag	ggtccgagaa	gggctcgaaa	tccgttttcg	ccgacgccgt	gcagactacc	540
tttcaccacg	acgtgatgcg	attcgtgggtg	cgggcgcatc	acaacgggca	aggcagcctg	600
ttcgacagcc	gttaccgggc	acgcatactc	cctccatgga	atggtgggaa	gggcggcgat	660
gcatgggaag	cctttcgcac	ggcggtgtt	gcctcggggg	cgtttccggc	cgcatttcct	720
cccgtcgaga	tcagccgcaa	ccgcgacgaa	ttcaacatct	ggcccgatcg	catcgaggac	780
cagaaggcat	ttacgttcga	ttacgtggac	ggcggggtac	ttcgcaacga	accctccgg	840
gaggcgattc	acctggccgc	gctgcgcgat	gagggagcga	cggacatcga	gcgtgtgttc	900
atcctcatcg	acccgaacat	cagcggcacc	ggcgaggtct	tcccgtcttc	ctataaccag	960
cagatgcgga	tcaagccgaa	ctacgattcc	aacggcgacg	tccgacagta	cgatctcgat	1020
gtgccggact	acaccggcaa	tctgatcggg	gcgatcggtc	ggctgggttc	ggtgatcgtc	1080
gggcaggcga	cgttccgcga	ctgggtcaag	gctgccaaag	tgaacagcca	gatcgagtgg	1140
cgacgggaat	tgctgcccac	tctccgcgac	ctgaaccgga	accccgggga	ggaggcgcg	1200
aggggcggtga	acgggatgat	cgacaagatc	taccggcaaa	agtatcagcg	cgccctcgag	1260
tcaaagagcg	ttccggtcga	ggaggtggaa	cggcgcgttg	ccgaagacat	cgaacgggac	1320
ctggcgcggc	gccgttcgga	ggccggcgac	aacgacttca	ttgcccggt	cctcctgctc	1380
gtcgacctga	tcggcaacct	gcgtgagaag	cagaagctga	acatgggtgg	gatcaccccc	1440
gcttccgcgc	cgcacaaacga	cgggcgcccc	ttgccgctgg	ccggcaattt	tatgttcagc	1500
ttcgggggggt	tcttcaggga	ggagtacagg	caatacgact	tctcggtcgg	cgaattcgca	1560
gcatggaacg	tcctgagcac	ggcggcctcc	gagacgccct	ttcttgccga	gaccgccccg	1620
aaaccgcccc	ccgacctcc	ccagccgcgc	gcaatcaatc	ctacctaccg	ctcactcggc	1680
ccgcccattcc	agcagcggtt	cgaggagtcc	gttcgtgggc	acgttcgcgc	ctttatcgct	1740
tcggctcgctc	cgctgggaac	gagagggatc	gtcacgggca	agattggcgg	aaagcttcga	1800
acgatgctga	tggcctcgcg	caacgggaaa	tcagagtact	tccggcttcg	cctctccggc	1860
gttgacgggc	tctacctccg	aggctccaag	ggccgcaacc	tgagggcggt	taacggatcg	1920

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atcgacacgg tcgtcggcgt ctatatcgac gaggaagatc agcaccgcga tgagtttttc 1980
gggtcccatg tcttcggcgc gaacggctca ggctttacga tggaactatg ggagtccgcg 2040
gggttttttcg ggcgtgatcg tcgcgtcgct gtgatcgagt tggagaacaa ccccggcggg 2100
ttcgcaatcg ccgccggatg caggcggcgg cccggcggtg tgctggatat ggccaggcgt 2160
aacgggcagc cactgcggac ggtgatgtg atggaatttg cgtga 2205

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<210> 104

<211> 734

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 104

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Met Ser Glu Lys Lys Glu Ile Arg Val Ala Leu Ile Met Gly Gly Gly
1      5      10      15
Val Ser Leu Gly Ser Phe Ser Gly Gly Ala Leu Leu Lys Thr Ile Glu
20     25     30
Leu Leu Gln His Thr Ala Arg Gly Pro Ala Lys Ile Asp Val Val Thr
35     40     45
Gly Ala Ser Ala Gly Ser Met Thr Leu Gly Val Val Ile Tyr His Leu
50     55     60
Met Arg Gly Ser Ser Thr Asp Glu Ile Leu Arg Asp Leu Arg Arg Ser
65     70     75     80
Trp Val Glu Met Ile Ser Phe Asp Gly Leu Cys Pro Pro Asn Leu Ser
85     90     95
Arg His Asp Lys Pro Ser Leu Phe Ser Asp Glu Ile Val Arg Lys Ile
100    105    110
Ala Ala Thr Val Ile Asp Met Gly Arg Lys Leu Glu Ala Ala Pro His
115    120    125
Pro Leu Phe Ala Asp Glu Leu Val Ala Ser Phe Ala Leu Thr Asn Leu
130    135    140
Asn Gly Ile Pro Ala Arg Thr Glu Gly Gln Leu Ile Arg Gln Ala Lys
145    150    155    160
Gly Gly Gly Gly Ser Glu Lys Gly Ser Lys Ser Val Phe Ala Asp Ala
165    170    175
Val Gln Thr Thr Phe His His Asp Val Met Arg Phe Val Val Arg Arg
180    185    190
Asp His Asn Gly Gln Gly Ser Leu Phe Asp Ser Arg Tyr Arg Ala Arg
195    200    205
Ile Leu Pro Pro Trp Asn Val Gly Lys Gly Asp Ala Trp Glu Ala
210    215    220
Phe Arg Thr Ala Ala Val Ala Ser Gly Ala Phe Pro Ala Ala Phe Pro
225    230    235    240
Pro Val Glu Ile Ser Arg Asn Arg Asp Glu Phe Asn Ile Trp Pro Asp
245    250    255
Arg Ile Glu Asp Gln Lys Ala Phe Thr Phe Asp Tyr Val Asp Gly Gly
260    265    270
Val Leu Arg Asn Glu Pro Leu Arg Glu Ala Ile His Leu Ala Ala Leu
275    280    285
Arg Asp Glu Gly Ala Thr Asp Ile Glu Arg Val Phe Ile Leu Ile Asp
290    295    300
Pro Asn Ile Ser Gly Thr Gly Glu Val Phe Pro Leu Ser Tyr Asn Gln
305    310    315    320
Gln Met Arg Ile Lys Pro Asn Tyr Asp Ser Asn Gly Asp Val Arg Gln
325    330    335

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Tyr Asp Leu Asp Val Pro Asp Tyr Thr Gly Asn Leu Ile Gly Ala Ile
 340 345 350
 Gly Arg Leu Gly Ser Val Ile Val Gly Gln Ala Thr Phe Arg Asp Trp
 355 360 365
 Leu Lys Ala Ala Lys Val Asn Ser Gln Ile Glu Trp Arg Arg Glu Leu
 370 375 380
 Leu Pro Ile Leu Arg Asp Leu Asn Pro Asn Pro Gly Glu Glu Ala Arg
 385 390 395 400
 Arg Gly Val Asn Gly Met Ile Asp Lys Ile Tyr Arg Gln Lys Tyr Gln
 405 410 415
 Arg Ala Leu Glu Ser Lys Ser Val Pro Val Glu Glu Val Glu Arg Arg
 420 425 430
 Val Ala Glu Asp Ile Glu Arg Asp Leu Ala Arg Arg Arg Ser Glu Ala
 435 440 445
 Gly Asp Asn Asp Phe Ile Ala Arg Leu Leu Leu Leu Val Asp Leu Ile
 450 455 460
 Gly Asn Leu Arg Glu Lys Gln Lys Leu Asn Met Val Ala Ile Thr Pro
 465 470 475 480
 Ala Ser Ala Pro His Asn Asp Gly Arg Pro Leu Pro Leu Ala Gly Asn
 485 490 495
 Phe Met Phe Ser Phe Gly Gly Phe Phe Arg Glu Glu Tyr Arg Gln Tyr
 500 505 510
 Asp Phe Ser Val Gly Glu Phe Ala Ala Trp Asn Val Leu Ser Thr Pro
 515 520 525
 Ala Ser Glu Thr Pro Phe Leu Ala Glu Thr Ala Pro Lys Pro Pro Ala
 530 535 540
 Arg Pro Pro Gln Pro Pro Ala Ile Asn Pro Thr Tyr Arg Ser Leu Gly
 545 550 555 560
 Pro Pro Ile Gln Gln Arg Phe Glu Glu Phe Val Arg Gly His Val Arg
 565 570 575
 Ala Phe Ile Ala Ser Val Ala Pro Leu Gly Thr Arg Gly Ile Val Thr
 580 585 590
 Gly Lys Ile Gly Gly Lys Leu Arg Thr Met Leu Met Ala Ser Arg Asn
 595 600 605
 Gly Lys Ser Glu Tyr Phe Arg Leu Arg Leu Ser Gly Val Asp Gly Leu
 610 615 620
 Tyr Leu Arg Gly Ser Lys Gly Arg Asn Leu Arg Ala Val Asn Gly Ser
 625 630 635 640
 Ile Asp Thr Val Val Gly Val Tyr Ile Asp Glu Glu Asp Gln His Arg
 645 650 655
 Asp Glu Phe Phe Gly Pro His Val Phe Gly Ala Asn Gly Ser Gly Phe
 660 665 670
 Thr Met Glu Leu Trp Glu Ser Arg Gly Phe Phe Gly Arg Asp Arg Arg
 675 680 685
 Val Ala Val Ile Glu Leu Glu Asn Asn Pro Gly Gly Phe Ala Ile Ala
 690 695 700
 Ala Gly Cys Arg Arg Arg Pro Gly Val Val Leu Asp Met Ala Arg Arg
 705 710 715 720
 Asn Gly Gln Pro Leu Arg Thr Val Asp Val Met Glu Phe Ala
 725 730

<210> 105

<211> 756

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 105
 atgaaccgtt gtcggaactc actcaacctc caacttcgcg cggtagaccgt ggcggcggttg 60
 gtagtcgtcg catccteggc cgcgctggcg tgggacagcg cctcgcgcaa tccgacccat 120
 cccaccaca gctagctcac cgaatacgcc atcgatcagc ttgggggtggc gcggccggag 180
 ctccggcaat accgcaagca gatcatcgag ggcgccaaca ccgagctgca cgaactgcca 240
 gtcaagggga cggcctatgg cctcgacctc gacgccaagc ggcgggaaca ccgcggcacc 300
 aatgccggga cagacgacat cgccggctgg tgggcgga aa gcctccaagc ctatcgcgcc 360
 ggtgccaagg aacgcgccta ctctgtgctg ggggtgggtg tgacatggt cgaggacatg 420
 ggcgtgccgg cgcacgcgaa cggcgtctac caccagggca acctgactga attcgacaat 480
 ttcgagttca tgggactgtc gaactggaag ccctctttcg ccgacatcaa ccggaccgat 540
 ccgggctacg ccgacccgct gcgctactac gagttcagcc gagattggac ggcggcagac 600
 gcacccggct atcgcgaccg cgacagcttc tcgaagacct gggttctcgc cagcccgcc 660
 gaacgtcagc tgcttcagaa ccgccagggc cggaccgcca cggtcgccat gtgggcgtta 720
 cggagcgca cgaaggcggt cgccgggaaa ccctag 756

<210> 106

<211> 251

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(30)

<400> 106
 Met Asn Arg Cys Arg Asn Ser Leu Asn Leu Gln Leu Arg Ala Val Thr
 1 5 10 15
 Val Ala Ala Leu Val Val Val Ala Ser Ser Ala Ala Leu Ala Trp Asp
 20 25 30
 Ser Ala Ser Arg Asn Pro Thr His Pro Thr His Ser Tyr Leu Thr Glu
 35 40 45
 Tyr Ala Ile Asp Gln Leu Gly Val Ala Arg Pro Glu Leu Arg Gln Tyr
 50 55 60
 Arg Lys Gln Ile Ile Glu Gly Ala Asn Thr Glu Leu His Glu Leu Pro
 65 70 75 80
 Val Lys Gly Thr Ala Tyr Gly Leu Asp Leu Asp Ala Lys Arg Arg Glu
 85 90 95
 His Arg Gly Thr Asn Ala Gly Thr Asp Asp Ile Ala Gly Trp Trp Ala
 100 105 110
 Glu Ser Leu Gln Ala Tyr Arg Ala Gly Ala Lys Glu Arg Ala Tyr Phe
 115 120 125
 Val Leu Gly Val Val Leu His Met Val Glu Asp Met Gly Val Pro Ala
 130 135 140
 His Ala Asn Gly Val Tyr His Gln Gly Asn Leu Thr Glu Phe Asp Asn
 145 150 155 160
 Phe Glu Phe Met Gly Leu Ser Asn Trp Lys Pro Ser Phe Ala Asp Ile
 165 170 175
 Asn Arg Thr Asp Pro Gly Tyr Ala Asp Pro Ser Arg Tyr Tyr Glu Phe
 180 185 190
 Ser Arg Asp Trp Thr Ala Ala Asp Ala Pro Gly Tyr Arg Asp Arg Asp
 195 200 205
 Ser Phe Ser Lys Thr Trp Val Leu Ala Ser Pro Ala Glu Arg Gln Leu
 210 215 220

Leu	Gln	Asn	Arg	Gln	Glu	Arg	Thr	Ala	Thr	Val	Ala	Met	Trp	Ala	Leu
225					230					235					240
Arg	Ser	Ala	Thr	Lys	Ala	Leu	Ala	Gly	Lys	Pro					
				245					250						